6. PLAN IMPLEMENTATION

A. IMPLEMENTATION OVERVIEW

The Illinois River Basin Restoration Comprehensive Plan (Comprehensive Plan) identifies the vision, goals, objectives, and recommended level of effort needed to restore the basin. The success of the Comprehensive Plan will be a reflection of its implementation over a period of up to 50 years. It will take a well-coordinated strategy to be the driving force behind the sequence and pace at which specific project features are undertaken.

To carry out the recommendations, an implementation framework for the Illinois River Basin Restoration was developed. This section addresses the implementation assumptions and strategies, cooperative conservation and collaborative planning approach, and details on the identification, selection, study and implementation of Critical Restoration Projects and other specific components. In a relatively short time, and in specific areas, Critical Restoration Projects will begin to reverse the pattern of ecological degradation that has been occurring for decades. As a result of Tier I and II restoration effort, areas within the Illinois River Basin will be ecologically healthier by the years 2011 and 2015.

Implementation will require integration of many related projects and tasks. The Comprehensive Plan comprises an overarching goal, six specific goals, and hundreds of small projects that need to be integrated with each other and with other Federal, state and local programs and projects. Implementation will require an innovative and collaborative project management and organizational effort. This section describes the project implementation process and the near term schedule developed to implement the recommended Comprehensive Plan.

1. Tiered Implementation Approach. The recommendations call for continuing restoration efforts under the existing authority of Section 519. Corps of Engineers cost shared restoration efforts would begin with $153.85 million in funding through 2011 (Tier I), increasing to $384.6 million in restoration efforts through 2015 (Tier II). The funding and activities would begin significant restoration consistent with eventual implementation of Alternative 6 (Recommended Plan). The initial phases are proposed to demonstrate the benefits of the various measures and project components prior to seeking additional funds. While some work will occur throughout the basin, restoration efforts would focus on the upper watershed and, in particular, the Peoria Pool and tributaries and the Kankakee River Basin. These are two of the high value resource areas and, due to their location in the upper reaches of the basin, have potential to more rapidly demonstrate the effectiveness of the various projects.

The restoration efforts undertaken in partnership with the Corps of Engineers would be cost shared 65 percent Federal and 35 percent non-Federal. Funding would be allocated into three major categories: (1) planning, design, construction and adaptive management of Critical Restoration Projects; (2) technologies and innovative approaches component; and (3) system management. If funding is available, a report to Congress will be submitted in the 2011 timeframe, documenting the project successes and the results from Tier I restoration efforts, estimated at $153.85 million (table 6.1).

Table 6-1. Estimated Projects and Cost Breakdowns

	TIER COMPONENTS			TOTAL COSTS	
	Projects	**Technologies & Innovative Approaches**	**Management**	**Federal Costs (65%)**	**Non-Federal Costs (35%)**
Tier I $ 153.85 million through 2011	$127.0 million • 8 small watersheds • 2 reaches of major tributaries • 3 backwaters, 4 side channels/islands, 1 floodplain areas on mainstem Illinois River	$24.1 million	$2.75 million	$100 million	$53.85 million
Tier II $384.6 million through 2015	$321.9 million • 20 small watersheds • 4 reaches of major tributaries • 4 backwaters, 8 side channels/islands, 2 floodplain areas on mainstem Illinois River	$56.9 million	$5.75 million	$250 million	$134.6 million

	Projects	**Technologies & Innovative Approaches**	**Management**	**Total Costs**
Alternative 6 $8 billion through 2055	$7.2 billion • 150 small watersheds • 88 reaches of major tributaries • 60 backwaters, 35 side channels/islands, 150 floodplain areas on mainstem Illinois River	$700 million	$55 million	$8 billion - cost shared among numerous Federal, State, and local agencies and programs

2. Implementation Framework Goals. The purpose of the implementation framework includes:

- To ensure that Illinois River Basin Restoration projects address system ecological needs and system goals at sub-watershed, watershed, pool segment, pool, and system scales by coordinating all planning, restoration, and monitoring efforts.

- To ensure the system prioritization criteria used for watershed and project identification sustainability.

- To enhance public understanding and trust in the decision-making process by making Illinois River Basin Restoration evaluation criteria explicit and consistent.
  To ensure interagency coordination and matching of potential projects with appropriate Federal and State restoration and management programs or other restoration initiatives.

- To retain the flexibility necessary to ensure efficient, effective program execution and to apply adaptive management principles to project planning, design, and implementation.

3. Assumptions and Strategy for Initial Efforts

a. Authorization. The following section summarizes the existing Section 519 of WRDA 2000 authorization and presents assumptions regarding additional authorization in the future.

- *Planning, Design, and Construction of Critical Restoration Projects* was authorized in Section 519. This authorization is ongoing and limited only by the specific yearly appropriations. The Assistant Secretary of the Army for Civil Works [ASA(CW)] approves Critical Restoration Projects.

- The Section 519 authorization, sub-sections (b)(6) Additional Studies and Analyses, allows planning of additional restoration projects over the $5 million Federal per project limit, but the Feasibility reports would need to go to Congress for authorization.

- For the purposes of this Comprehensive Plan , it is assumed that recommended modifications to the existing authorization will be approved by 2007. These recommendations include:

  i. The per project Federal cost limit for Critical Restoration Projects, be increased from $5 million to $20 million. Replace the specific criteria for Critical Restoration Projects found in Section 519 with a requirement that restoration projects follow an implementation framework and include interagency coordination.

  ii. Authorization for implementation of a Technologies and Innovative Approaches Component be provided as a complement to the Critical Restoration Project activities. Activities would include initiatives called for in Section 519 (b)(3)(A),(C), and (D) calling for the development and implementation of dredging and beneficial use technologies; long term resource monitoring; and a computerized inventory and analysis system.

  iii. Authorization be provided allowing the development of cooperative agreements and fund transfers between the Corps of Engineers and the State of Illinois: scientific

surveys at the University of Illinois; and units of local government: counties, municipalities, and Soil and Water Conservation Districts to facilitate more efficient partnerships.

iv. Authorization be provided for the Chief of Engineers to enter into cooperative agreements with the Natural Resources Conservation Service for services to be performed by contract, grant or agreement, or by any other instrument or resource available to and consistent with the authorities of the Natural Resources Conservation Service.

v. Authorization be expanded to allow non-profit organizations to serve as sponsors and sign Project Cooperation Agreements (PCAs) for restoration projects implemented under the Illinois River Basin Restoration Project.

vi. That the Secretary of the Army, in consultation with the State of Illinois, submit a report to Congress every 6 years describing the accomplishments of the programs and discussing issues that need to be adjusted.

b. Funding. The annual cost shared execution capability of the Corps of Engineers Districts and non-Federal sponsors is estimated to reach approximately $40 million per year by 2011 and increase to approximately $65 million per year by 2015.

If significant multi-agency progress is going to be made on implementing the Comprehensive Plan, other Federal and State agencies would also need funding expanded beyond current levels. A more detailed discussion of other agencies' potential roles in implementation is included in section 4.b. of this report, *Interagency Missions, Programs, and Authorities.*

c. Strategy. Because of the large number of complex features that will be developed over a long period of time and the benefits that will be gained, the strategy for implementation of the recommended Comprehensive Plan will be pursued as a program. Approaching implementation as a program will allow flexibility in the management of program scheduling and funding. To ensure continued progress in implementing the Comprehensive Plan, a project implementation process is needed to allow for additional studies that would support project development and future Congressional authorizations. Key assumptions regarding agreements that are necessary to proceed with implementation of the Comprehensive Plan are as follows:

- A collaborative planning approach will utilize the expertise, missions, programs, and funding of other Federal, State, and local agencies, and also non-Governmental Organizations (NGOs).

- In FY06 and FY07, feasibility planning of Critical Restoration Projects would continue using GI funding under the original Feasibility Cost Sharing Agreement.

- In FY 07 or FY08 (depending on authorization and funding), an agreement will be signed covering the elements of system management, restoration planning, and technologies and innovative components. Cost sharing would be 65/35 Federal/non-Federal.

- Other implementation of Critical Restoration Projects will occur following the current process: (1) Division Endorsement of report to Headquarters, U.S. Army Corps of Engineers (HQUSACE), and (2) HQUSACE and ASA(CW) review and approval. After Division Endorsement, Plans and Specifications (P&S) can be initiated at 100 percent Federal costs. The total project cost for P&S and construction will be cost shared 65/35 Federal/non-Federal , following signing of the PCA.

- In the future, the Districts will request the approval of projects be delegated to the Division Commander.

4. Cooperative Conservation

a. Organizational Framework. The Comprehensive Plan was formulated to address system restoration needs and was not specific to Corps of Engineers and Illinois Department of Natural Resources (DNR) activities. As a result, the total restoration costs include a relatively large portion of work for other agencies. The process of identifying agency missions and programs has been initiated and documented in the following section, but the process of full multiple agency implementation will continue to develop over the initial years of the program. This section presents the organizational framework for continued coordination and implementation of projects. It is acknowledged that there are funding challenges for all agencies, which highlights the need to partner in the implementation of the Illinois River Basin restoration. This continued agency coordination will be done in the spirit of cooperative conservation, where the resources of numerous agencies are focused on solving a resource problem.

Since the Comprehensive Plan formulation addresses total needs, some recommended measures could potentially be conducted by more than one agency. Estimates of the allocation of effort by agency were developed, but represent only rough approximations due to funding uncertainties for each agency. This funding uncertainty is a key reason for the proposed interagency coordination and adaptive implementation framework for the restoration activities. Restoration and monitoring activities will be conducted under the organizational structure shown in Figure 6-1.

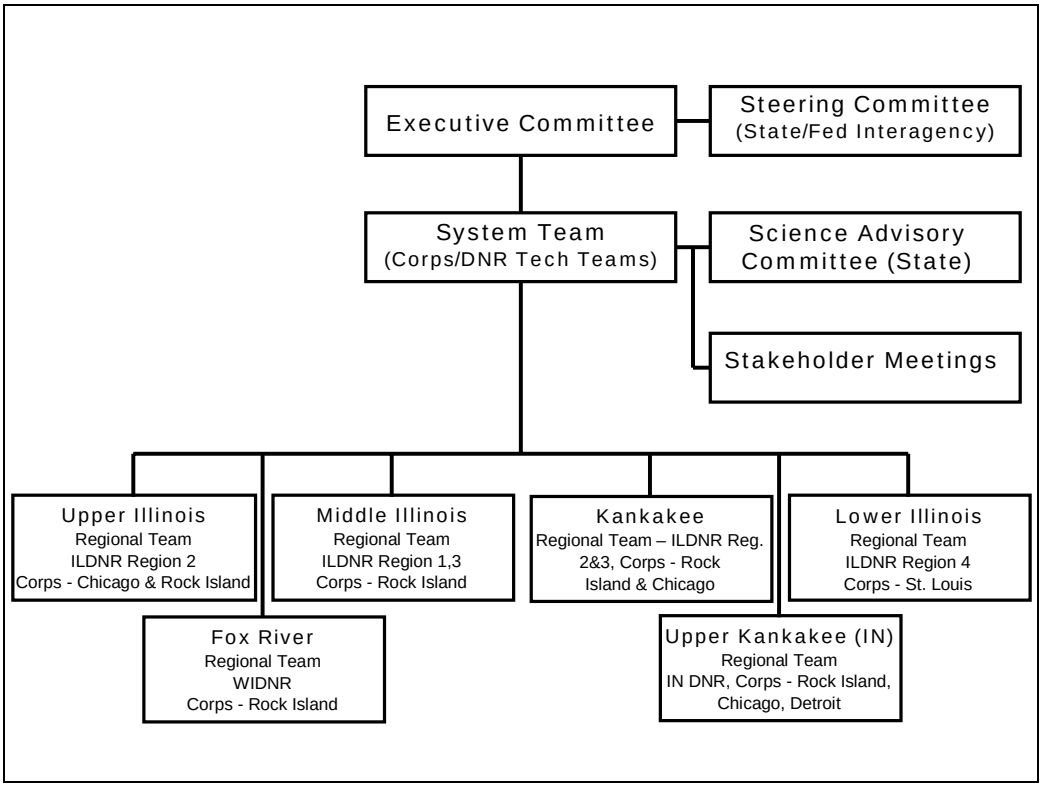

Figure 6-1. Study Organizational Structure

i. Executive Committee. The Committee will have representatives from two Corps Regional Headquarters (Mississippi Valley Division, MVD, and Great Lakes and Ohio River Division, LRD); four Corps Districts (Rock Island, St. Louis, Chicago, and Detroit); and the non-Federal sponsors (Illinois DNR and representatives from the States of Indiana and Wisconsin). The Executive Committee will be chaired by the MVD. It will be responsible for oversight of the management and implementation of the project, including decisions on project funding. The Executive Committee will meet approximately twice a year, with meeting schedules timed to synchronize receipt or provision of input from other committee meetings as needed.

Members of this committee will sit on the Navigation and Ecosystem Sustainability Programs (NESP), River Resources Illinois Team (RRIT) to assure consistence and coordination between the Illinois River Basin Restoration (Section 519) efforts and any restoration work resulting from the Upper Mississippi River-Illinois Waterway System (UMR-IWW) Navigation Study (if authorized).

ii. Steering Committee. The Steering Committee will be the interagency group responsible for coordinating the Illinois River Basin and Ecosystem Restoration efforts. It will be co-chaired by the Corps of Engineers and the Illinois DNR, and will be composed of State and Federal agency representatives. This Committee will meet approximately twice a year to exchange views, information, and advice to ensure coordination among various agency programs.

iii. System Team. The System Team will be composed of the multi-disciplinary technical staff primarily from the Corps of Engineers and State DNRs. Additional team members may be selected. This team will have primary responsibilities for overall project delivery and system evaluations. The team will incorporate the expertise of scientists and technical staff as necessary. Team size is anticipated to be approximately 10 members with suggested disciplines to include:

- Geomorphology
- Limnology
- Fish ecology/management
- Forestry
- Hydrology
- Wildlife ecology/management
- Wetlands
- Engineering

iv. Science Advisory Committee. The existing State of Illinois Science Advisory Committee (SAC), a sub-committee of the Illinois River Coordination Council, can exchange views and provide information to the System Team.

v. Regional Teams. Organizing efforts by geographic region allows for the more efficient accomplishment of project activities. Six regions established for the basin are Upper Illinois, Fox River, Kankakee, Upper Kankakee, Middle Illinois, and Lower Illinois. Each regional team, consisting of Corps of Engineers and State DNR personnel, will have primary responsibilities for the evaluation and implementation of Critical Restoration Projects. Regional Team meetings will provide a forum for groups—with detailed information on resource concerns—to exchange views and information regarding areas in need of assessment and potential Critical Restoration Projects, evaluate the proposed site-specific projects, and facilitate the detailed study of these projects.

Invited attendees include the Illinois Environmental Protection Agency (EPA); Illinois Department of Agriculture; representatives from the States of Indiana and Wisconsin; USDA Natural Resources Conservation Service (NRCS) and Farm Service Administration (FSA); U.S. Fish and Wildlife Service (USFWS); USEPA; U.S. Geological Survey (USGS); Ecosystem Partnership Groups; Soil and Water Conservation Districts (SWCDs); NGOs; Levee and Drainage Districts; and Local Governments.

vi. Stakeholder Meetings. Stakeholder meetings will provide a forum to present study status and information on implementation and management to all interested Federal, State, and local agencies, as well as NGOs. Stakeholder meetings will be held approximately once a year in each of the six regions or as interim products are completed. Their primary focus will be public involvement, information sharing, and dialog among all groups and interests.

b. Interagency Missions, Programs, and Authorities. The Plan effort has been an open, collaborative process with participation from Federal and State agencies, local governments, and non-governmental organizations. The interagency team approach will continue throughout the implementation period to coordinate the development, review, evaluation and adaptive management of the Plan. These efforts will be carried out in a manner consistent with the August 26, 2004 Executive Order on Facilitation of Cooperative Conservation.

The mission, programs, and authorities of the Corps of Engineers and other Federal and State agencies are briefly presented below.

i. U.S. Army Corps of Engineers (USACE). The mission of USACE is to provide quality, responsive engineering services to the nation including "… planning, designing, building and operating water resources and other civil works projects (Navigation, Flood Damage Reduction, Ecosystem Restoration, Disaster Response, etc.)." As it relates to Illinois River Basin Restoration activities, the Corps has a number of programs and authorities that can be utilized for ecosystem restoration and other purposes in addition to the Section 519 authority.

Programs and Authorities

Upper Mississippi River - Environmental Management Program (EMP). The EMP established in 1986 is comprised of two elements—Habitat Rehabilitation and Enhancement Projects (HREPs) and the Long Term Resource Monitoring Program (LTRMP). This ongoing system program provides a combination of monitoring and habitat restoration activities. Restoration activities under the EMP are limited to the Mississippi River and navigable portions of its tributaries (which includes the Illinois River) and their adjacent floodplains.

The HREPs employ a variety of restoration measures to address the unique circumstances of a particular area in order to protect, preserve, and enhance fish and wildlife habitat in the Upper Mississippi River System (UMRS). As of February 2004, 73 HREPs are in various stages of planning, design, construction, and post-construction evaluation, and more than 40 HREPs have been completed. On the Illinois River, the EMP has undertaken seven projects with five completed, one under construction, and one scheduled for construction in 2008. Project planning, engineering, construction, and monitoring approaches applied to HREPs have evolved with the program and have resulted in improved efficiency, productivity, and responsiveness.

The LTRMP provides resource managers and decision makers with information necessary for maintaining the UMRS as a sustainable multiple-use large river ecosystem. The goals of the LTRMP include: (1) developing a better understanding of the ecology of the UMRS and its resource problems; (2) monitoring resource changes; (3) developing alternatives to better manage the UMRS; and (4) providing for the proper management of LTRMP information. The LTRMP work in the LaGrange and Alton Pools of the Illinois River will serve as a basis for further monitoring under Section 519.

Navigation and Ecosystem Sustainability Program (NESP). This effort encompasses the subsequent planning and design efforts related to the Upper Mississippi River - Illinois Waterway System Navigation Feasibility Study completed in September 2004. These efforts address the need for navigation improvements and ecosystem restoration in an area which includes 854 miles of the Upper Mississippi River—with 29 locks and dams between Minneapolis/St. Paul and the mouth of the Ohio River—and 327 miles of the Illinois Waterway—with eight locks and dams. Restoration activities would be limited to the mainstem rivers and adjacent floodplains. The study area lies within portions of Illinois, Iowa, Minnesota, Missouri, and Wisconsin. Recommendations awaiting authorization include:

- $2 billion in navigation improvements over 15 years. (50/50 funding with the Inland Waterway Users Trust Fund)
    - Mooring facilities at Lock and Dams 12, 14, 18, 20, 22, 24, La Grange
    - Switchboats at Lock and Dams 20, 21, 22, 24, and 25
    - 1,200' chambers at locks 20, 21, 22, 24, and 25, Peoria, and La Grange

- $1.5 billion of ecosystem restoration over 15 years (100 percent funding for projects on Federal lands, 65/35 cost share on non-Federal lands)
    - Fish passage at UMR dams 4, 8, 22, and 26
    - Changes in water-level control at UMR dams 25 and 16
    - 225 projects of less than $25 million each: island building, water-level management, backwater/side-channel restoration, wing dam/dike alterations, island shoreline protection
    - 35,000 acres floodplain restoration

While no authorization for construction has been provided, subsequent study and design efforts were initiated in 2005 for a number of navigation and ecosystem restoration components for the entire UMRS-IWW.

Peoria Riverfront Development (Ecosystem Restoration) Study, Illinois. This project is located within Peoria and Tazewell Counties, Illinois, between Illinois River Miles 162 and 167. The feasibility study was conducted by the Corps of Engineers and Illinois DNR (non-Federal sponsor) to investigate Federal and State interest in ecosystem restoration within Peoria Lake and the Farm Creek Watershed. Its principal goal is to enhance aquatic habitats through the restoration of depth diversity and to reduce sediment delivery and deposition; ancillary benefits are expected for recreational boating and fishing. The recommended plan includes dredging and island creation. Specific authority for conducting the Peoria Riverfront Development Study is contained in Resolution 2500 of the Committee on Transportation and Infrastructure, adopted May 9, 1996. The report was completed in March 2003, and Planning, Engineering, and Design were initiated in January 2004 to prepare plans and specifications. In 2004, approval was given to initiate dredging and construct the first of three islands under Section 519 authority.

Upper Mississippi River Comprehensive Plan. The Comprehensive Plan Study was authorized by Section 459 of WRDA 1999 to:

> "… develop a plan to address water resource and related land resource problems and opportunities in the Upper Mississippi and Illinois River basins from Cairo, Illinois, to the headwaters of the Mississippi River, in the interest of the systemic flood damage reduction by means of
>
> (1) Structural and nonstructural flood control and floodplain management strategies;
> (2) Continued maintenance of the navigation project;
> (3) Management of bank caving and erosion;
> (4) Watershed nutrient and sediment management;
> (5) Habitat management;
> (6) Recreation needs; and
> (7) Other related purposes.

The study focuses on the 500-year floodplains of the reach of the UMR between Anoka, Minnesota, and Thebes, Illinois, and the reach of the Illinois River between its confluence with the Mississippi and the confluence of the Kankakee and Des Plaines Rivers. Although the development of the Plan will be at Federal expense, any feasibility studies resulting from development of the plan will be subject to cost sharing under Section 105 of WRDA 1986 (33 U.S.C. 2215).

The Plan embraces the dual overarching national goals of flood damage reduction and associated environmental sustainability. The study focuses on development and evaluation of multiple systemic alternative plans composed of various combinations of structural and nonstructural measures that, if implemented, would result in reduced flood damage potential and net improvements to floodplain habitat conditions. An integrated study approach in developing ecosystem goals and objectives has been accomplished with the UMRS Navigation Study. The Navigation Study addressed goals and objectives related to the navigation system, and the Upper Mississippi River (UMR) Comprehensive Plan is addressing those goals and objectives related to flood damage reduction. The UMR Comprehensive Plan will be completed in Fiscal Year 2006, with any recommendations for implementation being forwarded to the Committee on Transportation and Infrastructure of the House of Representatives and the Committee on Environment and Public Works of the Senate.

Kankakee River Basin Feasibility Study. The Kankakee River Basin drains an area of approximately 5,200 square miles in Illinois and Indiana. Recurrent flooding causes damages to agriculture and infrastructure. The flooding is the result of several factors, including increased runoff from development, loss of river capacity due to channelization and sediment buildup, and loss of wetlands to retain water. A study by the Chicago District of the U.S. Army Corps of Engineers is investigating opportunities within the basin for flood damage reduction, sediment reduction, and ecosystem restoration. The non-Federal project sponsors are the Indiana and Illinois DNRs and the Kankakee River Basin Commission. The feasibility study is cost shared equally between the Federal Government and non-Federal sponsors and is currently on hold.

Environmental Continuing Authorities Program (CAP). The Environmental CAP encompasses ongoing Corps of Engineers Authorities to perform various small ecosystem restoration projects with non-Federal Sponsors, including.

- **Section 206 of the 1996 Water Resources Development Act - Aquatic Ecosystem Restoration.** These projects are for improving the quality of the environment by restoring habitat for fish and wildlife. A project is approved for construction after investigation shows engineering, economic and environmental feasibility. These projects are cost-shared 65 percent Federal and 35 percent non-Federal. Each project is limited to a Federal cost of $5 million. Such projects will usually include manipulation of the hydrology in and along bodies of water, including wetlands and riparian areas. Deep water dredging to improve habitat conditions for the over-winter survival of fish in an otherwise shallow lake area is an example of this type of project.

- **Section 1135 of the 1986 Water Resources Development Act - Project Modification for Improvement of the Environment.** These projects are for modifications to an existing Corps project and/or its operations. The work must improve the quality of the environment by restoring habitat for fish and wildlife. Justification is based on a comparison of monetary and non-monetary costs vs. benefits. These projects are cost-shared 75 percent Federal and 25 percent non-Federal. Each project is limited to a Federal cost of $5 million. An example of this type of project might be to construct water control structures within a wetland to better optimize conditions for the production and availability of waterfowl-preferred food plants near an existing Corps project.

- **Section 204 of the 1992 Water Resources Development Act - Beneficial Use of Dredged Material.** These projects protect, restore and create aquatic and/or wetland habitats associated with dredging for authorized Federal navigation projects. A project is constructed after investigation shows engineering, economic and environmental feasibility. These projects are cost-shared 75 percent Federal and 25 percent non-Federal. Placing dredged material from the maintenance of a navigation channel at a specific location is an example of this type of project.

Potential Role in Implementing the Comprehensive Plan. The EMP and NESP authorities are anticipated to be utilized for many of the projects on the mainstem (i.e. backwaters, side channels, islands, and mainstem floodplain restoration efforts) and provide funding for a significant portion of the mainstem monitoring. See the next section for more detailed assumptions. Close coordination among all three programs will assure the best use of Federal and non-Federal sponsor resources. In addition, there is the potential for Environmental CAP to be used to conduct some aquatic ecosystem projects throughout the basin.

ii. U.S. Department of Agriculture (USDA). The mission of the USDA is to "provide leadership on food, agriculture, natural resources, and related issues based on sound public policy, the best available science, and efficient management." The USDA provides funding through the Natural Resources Conservation Service (NRCS) and the Farm Service Agency (FSA), to agricultural producers in support of environmental objectives on lands with a crop history.

Programs and Authorities

The **Environmental Quality Incentives Program (EQIP)** provides technical, financial, and educational assistance to farmers and private landowners who are faced with serious threats to soil, water, and related natural resources. Processing approximately 490 contracts within the Illinois River Basin, NRCS has expended approximately $5.1 million for financial assistance to treat natural resources concerns on cropland, confined livestock, and grazing lands in Fiscal Year (FY) 2005.

The **Wildlife Habitat Incentive Program (WHIP)** provided approximately $64,754 of financial assistance to develop and improve wildlife habitat on private lands within the Illinois River Basin in FY 2005.

The **Wetland Reserve Program (WRP)** increases wildlife habitat and improves water quality by providing additional wetland habitat, slowing overland flow, and providing natural pollution control. Since 1994, approximately $14.4 million has been spent in the Illinois River Basin to restore 9,927 acres of habitat on 23 properties.

The **Conservation Reserve Program (CRP)** and **Conservation Reserve Enhancement Program (CREP)** enrollments provide additional in-place conservation practices facilitating resource management in the Illinois River Basin. From 1998 to 2004, the State of Illinois provided $51 million to leverage $271 million in Federal funds to enroll 110,000 acres in Federal CRP easements and 73,000 acres in State CREP easements. Private landowners can enroll in conservation easements (CRP) with the USDA through a 15-year Federal contract. The lands enrolled in the Federal portion are then eligible for a voluntary 15-year or 35-year state contract extension, or a state permanent conservation easement (CREP).

Approximately 45,000 acres of the State easements are on lands where there is a Federal contract. The State also acquired State-only easements on numerous adjacent areas and now holds roughly 28,000 acres in these State-only easements. There is the potential for an additional $242 million in Federal funds through December 31, 2007 to enroll approximately 123,000 more acres in the basin if State leveraging funds are provided. In August 2005, the State of Illinois announced its budget for the upcoming year which includes $10 million to leverage $40 million in Federal funds, allowing for CREP easements on approximately 15,000 more acres.

In April 1997, the USDA officially launched the National Conservation Buffer Initiative and pledged to help landowners install 2 million miles of conservation buffers by the year 2002. The initiative is led by the NRCS in cooperation with the Agricultural Research Service, Farm Service Agency; Forest Service; Cooperative State Research, Education, and Extension Service; state conservation agencies; conservation districts; and numerous other public and private partners. The National Conservation Buffer Initiative encourages farmers and ranchers to understand the economic and environmental benefits of buffer strips and use these practices through the various programs of the conservation tool kit. Programs used for this effort include the continuous CRP signup, as well as EQIP, WHIP, WRP, Stewardship Incentives Program, and Emergency Watershed Protection Program.

The **Conservation Security Program (CSP)** is a voluntary conservation program that supports ongoing stewardship of private agricultural lands by providing payments for maintaining and enhancing natural resources. CSP identifies and rewards those farmers and ranchers who are meeting the highest standards of conservation and environmental management on their operations. The Farm Security and Rural Investment Act of 2002 (2002 Farm Bill) (Pub. L. 107-171) amended the Food Security Act of 1985 to authorize the program. The CSP is offered only in selected watersheds across the Nation. The Upper Sangamon, a watershed within the Illinois River Basin, was selected as a CSP area for 2006.

Potential Role in Implementing the Comprehensive Plan. The USDA has the mission and programs to implement many of the projects in the upper reaches of watershed and along the tributaries. In particular, efforts to restore floodplain wetlands, improve riparian buffers along streams, and improved farm practices directly relate to implementing the restoration plan. However, funding for these programs would need to expand to meet the needs identified in the restoration plan.

iii. U.S. Environmental Protection Agency (USEPA). The mission of the USEPA is to "protect human health and the environment." The five goals of the USEPA's Strategic Plan are based air and global climate change; water; land; communities and ecosystems; and compliance and environmental stewardship. USEPA programs related to the Illinois River Basin Restoration include water, watershed management, and wetlands. USEPA Region 5 oversees USEPA activities in the Illinois River Basin. Major activities ongoing in the basin include nutrient mapping, targeted watersheds grant program, and State List of Illinois Water Quality Impairments, summarized below. In addition, USEPA has delegated activities under Section 319 (Non-Point Source Grant Program) of the Clean Water Act and Total Maximum Daily Loads (TMDL) to the Illinois EPA.

Programs and Authorities

Nutrient Mapping of the Upper Mississippi. The USEPA Region 5 provides assistance and opportunities for multi-state collaboration to delegated Clean Water Act State programs in the Upper Midwest. One area of focus is the Upper Mississippi River Basin, which includes the Illinois River Basin. Nutrients have been linked to localized water quality impairments throughout the Upper Mississippi Basin, as well as in the Gulf of Mexico.

The USEPA is exploring ways to rank watersheds based upon their contribution of nutrients to the Gulf of Mexico. This effort could be utilized in the future to focus EPA's nutrient reduction activities to maximize reductions achieved with available resources. The study consists of a basin-scale, landscape analysis of existing water quality data to determine statistically significant factors that define an area's potential to contribute phosphorus to the waters of the Upper Mississippi Basin.

Targeted Watersheds Grant Program. Through this program, the USEPA provides grants to local groups working to protect and restore watersheds. In 2004, the Sangamon River Basin was one of 14 watersheds nationally that was selected to apply for EPA's *Targeted Watersheds Grant Program.* The selected watersheds will apply for grants between $700,000 and $1,300,000. This competitive grant program provides needed resources to watershed organizations whose restoration plans set clear goals and objectives. Special consideration is given to proposals which emphasize water quality monitoring, innovation, public education and strong community support. For the 2004 grants, a programmatic emphasis was placed on proposals that incorporated market-based incentives, or related to nutrient loading in the Mississippi River basin contributing to hypoxia (dead zone) in the Gulf of Mexico. The Upper Sangamon River Watershed Committee will devote Targeted Watershed funds to three interrelated projects to improve water quality locally, regionally, and in the Gulf of Mexico by reducing unnecessary nutrient discharges from agricultural areas.

2004 State List of Illinois Water Quality Impairments. Section 303(d) of the Clean Water Act provides a coordinated framework between states and the USEPA to systematically track and address impaired waters both statewide and nationwide. Under Section 303(d), the Illinois EPA must submit a list of water quality impaired waters in the state, and USEPA must review and approve or disapprove the list. The Illinois 2004 Section 303(d) list (or Total Maximum Daily Load Program list) was approved by the USEPA in October, 2004. The list is available on the Illinois EPA website, http://www.epa.state.il.us/water/tmdl/303d-list.html.

Total Maximum Daily Load Program (TMDLs). Although much success has been achieved through the 303(d) process and NPDES permitting program in reducing pollutants discharged to waterways by municipal treatment works and industrial discharges, some impaired waterways are not expected to recover through the application of technology-based effluent treatment alone.

States are required to list impaired waters every 2 years and to prioritize each water for an in-depth analysis of pollutant sources and the reductions necessary so that they attain all of the uses that they are assigned (or "designated" in CWA terminology). The in-depth analysis is called a *Total Maximum Daily Load* or *TMDL*. A stream can have many different segments within a stretch, as well as and numerous impairments representing a variety of needed improvements in its chemical, physical, and biological state.

The most recent TMDL list for the State of Illinois was approved in November 2004. The list can be found at the Illinois EPA website, http://www.epa.state.il.us/. The pollutant reductions called

for in TMDLs may require voluntary actions and the cooperation of many programs such as the CWA 319 program, CREP program, and ecosystem restoration actions recommended in this document in order to realize the water quality improvements called for in the TMDL and realize the water quality goals of the Clean Water Act.

Potential Role in Implementing the Comprehensive Plan The EPA has the mission and programs to implement many projects in the upper reaches of watershed and along the tributaries. In particular, the Section 319 grant program and Targeted Watersheds efforts have the potential to provide restoration funding to improve water quality. In addition, the EPA's current and probable future monitoring has the potential to meet a portion of the systemic monitoring needs. However, funding for these programs would need to expand to meet the needs identified in the restoration plan.

iv. U.S. Fish and Wildlife Service (USFWS). The mission of the USFWS is "working with others to conserve, protect and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people." Key functions of the USFWS include: enforcing Federal wildlife laws, protecting endangered species, managing migratory birds, restoring nationally significant fisheries, conserving and restoring wildlife habitat, helping foreign governments with their international conservation efforts, and overseeing the Federal aid program that distributes money to State fish and wildlife agencies.

Programs and Authorities.

Refuges. The USFWS manages four National Wildlife Refuges along the Illinois River and throughout the basin, encompassing 17,696 acres. The refuges include:

- Calhoun and Gilbert Lake Divisions of Two Rivers Refuge near the confluence of the Illinois and Mississippi Rivers;
- Meredosia Refuge at the north end of the Alton Pool;
- Chautauqua and Emiquon Refuges near Havana in the La Grange Pool; and
- Cameron/Billsbach Division south of Henry in the Peoria Pool.

These refuge lands are managed primarily to provide for the needs of wetland-dependent migratory birds, threatened species such as the bald eagle and decurrent false aster, and for native fish. When new lands are acquired, wetlands, prairie, and forest habitats are restored as needed. In some cases, water levels are manipulated in wetlands to provide optimum habitat diversity for numerous species of waterfowl, shorebirds, wading birds, and fish. The refuges provide opportunities for wildlife-oriented recreation such as hunting, fishing, wildlife observation, photography, interpretation, and environmental education when and where such activities are compatible with refuge objectives. Refuge goals, objectives, and management direction are outlined in the draft *Comprehensive Conservation Plans for the Illinois River National Wildlife and Fish Refuge Complex and for the Mark Twain National Wildlife Refuge Complex.* The refuges also actively support the Partners for Wildlife and Fish program described below.

The **Partners for Fish and Wildlife (PFW) Program** has been utilized to restore numerous basins consisting of thousands of acres of natural habitats on private lands, typically non-cropped, within the State of Illinois. The program focuses on Federal trust resources, migratory birds, Federal threatened and endangered (T&E) species, and proximity to as well as benefits to refuge lands. Although not all the following restored acreage is within the Illinois River Basin, the information

provided outlines the USFWS' PFW conservation efforts within the State of Illinois (Fischer, 2005).

Wetland basins	1987-2003, PFW restored 376 wetland basins consisting of 7,581
Upland	1991-2003, PFW restored 46 upland areas consisting of 1,603
During FY 2003	PFW restored 20 basins totaling 2,015 acres

This program, administered by the Illinois Private Lands Office, is a very effective and efficient way of restoring habitat, and should be considered in future goal attainment calculations. During FY 2003 alone, the PFW program restored approximately 2,015 acres of habitat within the state. The number of projects and acres can be highly variable, but typically range in size from 10 to 15 acres. In addition, the PFW is complementary with USDA programs and actively works with interested landowners to satisfy their interests through either USDA farm programs or PFW. The USFWS biologists within the PFW program have formed integral relationships with NRCS district conservationists, state biologists, and many other conservation authorities throughout the state. Through the combination of the effectiveness of the program and the partnering relationships that have formed among natural resources managers, the program has become very successful.

The **Landowner Incentive Program (LIP)** supports collaborative efforts with private landowners interested in conserving natural habitat for species at risk, including federally- listed endangered or threatened species and proposed or candidate species, on private land while these individuals continue to engage in traditional land-use practices. The Landowner Incentive Program, funded through competitive grants with money from the Soil and Water Conservation Fund, establishes or supplements existing landowner incentive programs that provide technical or financial assistance to private landowners. All grants need to be matched at least 25 percent from a non-Federal source. The State of Illinois received a grant in 2005 to develop a pilot project on the Lower Sangamon to improve threatened and endangered species habitat primarily on CREP lands.

Potential Role in Implementing the Comprehensive Plan. The USFWS has the potential to implement a number of tributary projects through the PFW and LIP programs. In addition, the USFWS is prepared to assume operation and maintenance (O&M) responsibilities for restoration sites at its Refuge sites. However, funding for these programs would need to expand to meet the needs identified in the restoration plan. At current levels, the PFW program receives $60,000 to $80,000 in habitat restoration on the Middle and Lower Illinois Rivers. This roughly translates into 15 to 25 projects annually, restoring or improving from 50 to as many as 1,500 acres in the Illinois River watershed.

v. U.S. Geological Survey (USGS). The mission of the USGS is to serve the Nation "by providing reliable scientific information to describe and understand the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect our quality of life." The USGS Illinois Water Science Center (IWSC) performs various activities in the Illinois River Basin as part of specific studies and special networks and programs.

Programs and Authorities

Under the **Basic Data Collection Program**, the USGS IWSC operates eight streamflow gaging stations on the Illinois River (five continuous discharge and three stage-only stations) and

numerous other stations on tributaries. The IWSC operates three sediment stations on the main stem. As part of the Lake Michigan diversion accounting (a part of the Supreme Court Decree), the IWSC is applying Acoustic Doppler Current Profilers (ADCP) and Acoustic Velocity Meters (AVMs) to measure flows from Lake Michigan to the Illinois River system at various locations in the Chicago area. All data collected are made available in the IWSC Digital Annual Data Report, and the discharge and stage data are available on a near real-time basis.

The **USGS National Water-Quality Assessment (NAWQA) Program** is a long-term program with goals to describe the status and trends of water quality conditions for large, representative parts of the Nation's ground and surface water resources. Assessment activities are being performed in 42 study units (major watersheds and aquifer systems) that account for a large percentage of the Nation's water use. A wide array of chemical constituents is measured in ground and surface water, streambed sediments, and fish tissue. In Illinois, two NAWQA study units (the upper and lower Illinois River Basin study units) have been operational since 1986 with the beginning of a pilot study in the upper basin. Work on the lower basin began in 1994 and was reestablished on the upper basin in 1997. Various data sets and reports are available as part of the studies in both basins. Funding for the NAWQA Program in the Illinois River Basin is expected to be as shown in table 6-2.

Table 6-2. NAWQA Funding by Federal Fiscal Year

Fiscal Year	Funding
2006	$626,400
2007	$620,000
2008	$449,000
2009	$1,157,000
2010	$881,000
2011	$600,000
2012	$440,000
2013	$440,000
2014	$440,000
2015	$440,000

The IWSC has numerous other activities in the Illinois River Basin, many carried out as part of the Water Cooperative Program, whereby local or State governments pay a portion of the study/data collection cost and the USGS pays no more than 50 percent of the cost. The IWSC collects continuous streamflow and rainfall data in the rapidly developing suburban counties of metropolitan Chicago. These data are used to calibrate USGS models of watershed runoff response to rainfall, which then are used to simulate runoff and flooding associated with a variety of land-use conditions and storms. Stream restoration, dam removal, and geomorphic analysis studies have been conducted on numerous locations in the Illinois River Basin. Numerous other site-specific studies have been and are being conducted on groundwater flow and quality in the basin, as well as work on the dissemination of a variety of hydrologic information through an Internet Map Server concerning source waters for the state. The IWSC also compiles and distributes water use information for the state on a 5-year basis.

USGS activities in the Illinois River Basin involving other USGS disciplines (geology, geography, and biological resources) include involvement in a network of monitoring sites as part of the National Atmospheric Deposition Program/National Trends Network that provide continuous measurement and assessment of the chemical constituents in precipitation throughout the United States, glacial and bedrock mapping throughout Illinois and nearby states as part of the Great Lakes Mapping Coalition, coal availability and recovery, and various mapping initiatives, including partnerships with various agencies to update topographic maps and aerial photography throughout the state.

Potential Role in Implementing the Comprehensive Plan. The USGS has the mission and programs to contribute significantly to systemic and site specific monitoring. In addition, the USGS also has capabilities to assist with watershed assessments and project planning. However, funding for these programs would need to expand to meet the needs identified in the restoration plan.

vi. Illinois Department of Natural Resources (DNR). The mission of the Illinois DNR is to manage, protect and sustain Illinois' natural and cultural resources; provide resource-compatible recreational opportunities; and promote natural resource-related issues for public safety and education. In addition to serving as the primary sponsor for Section 519, the DNR has a number of other ongoing programs with the potential to restore portions of the basin over the next 50 years.

Programs and Authorities

The Illinois DNR is the lead State agency working with USDA and the Illinois Department of Agriculture on the Conservation Reserve Enhancement Program (CREP). These efforts are summarized as part of the programs of the USDA above.

In 1995, the State initiated and funded a $100 million **Conservation 2000 (C2000) Program** to protect and manage Illinois' natural resources. The program is authorized through the year 2009 and is subject to annual appropriations. The nine programs funded under C2000 are administered by three State agencies—Illinois DNR, Illinois Department of Agriculture, and Illinois EPA.

The largest C2000 Program administered by the Illinois DNR is the Ecosystems Program. The Ecosystems Program provides financial and technical support for maintaining, restoring, and enhancing ecological and economic conditions in key watersheds throughout the Illinois River Watershed and the rest of the state. The C2000 Program is delivered through ecosystem partnerships, which are coalitions of local stakeholders who develop and implement natural resources plans that include a broad array of projects for restoration, protection, enhancement, monitoring, and education. The partnerships apply for competitive grants and have been awarded funding for projects that are directly related to Illinois River Restoration. As of 2001, the value of all C2000 Ecosystem projects totaled $43,487,865. The C2000 Program contribution was $16,583,458, with matching funds of $26,904,408. These projects provide for streambank stabilization, wetland restoration, prairie restoration, riparian buffers, vegetative covers on construction sites, and restoration of oxbows in tributaries of the Illinois River.

The Illinois DNR currently manages 51 conservation sites, encompassing approximately 101,013 acres. Twelve State of Illinois conservation areas totaling 26,568 acres can be found along with two State forests of 3,673 acres. State Fish and Wildlife Areas can be found at 12 locations totaling

18,138 acres. Finally, the Illinois DNR operates 25 State Parks within the Basin with 42,138 acres dedicated to conservation and recreation.

Potential Role in Implementing the Comprehensive Plan: The Illinois DNR is the primary sponsor of the Plan and current Critical Restoration Projects. It will provide funding and in kind services to match Federal funding on many of the projects. In addition, it will need to continue ongoing restoration, monitoring, and management activities and programs to maintain their current restoration efforts. Furthermore, funding will need to expand above existing levels to meet the needs identified in the restoration plan.

vii. Illinois Department of Agriculture. The mission of the Illinois Department of Agriculture is to be an advocate for Illinois' agricultural industry and provide the necessary regulatory functions to benefit consumers, agricultural industry, and natural resources. The agency will strive to promote agri-business in Illinois and throughout the world.

Programs and Authorities

During the reporting period of June 1, 2003 to September 1, 2005, the **C2000 Program** funded $2.2 million worth of upland soil and water conservation practices in the 39 counties that have significant land in the Illinois River Watershed. Administered by the Department and County Soil and Water Conservation Districts (SWCDs), this program provides 60 percent of the cost of constructing conservation practices that reduce soil erosion and protect water quality. Eligible conservation practices include terraces, grassed waterways, water and sediment control basins, grade stabilization structures and nutrient management planning. Approximately 1,330 individual conservation projects were completed in the Illinois River Watershed, bringing soil loss to tolerable levels on over 20,894 acres of land. This translates to over 113,914 fewer tons of soil loss each year.

In FY 2004, the State of Illinois, through the Department of Agriculture, provided over $3.3 million to 51 county SWCD offices in the Illinois River Watershed. Funds were used to provide financial support for SWCD offices, programs, and employees' salaries. Employees, in turn, provided technical and educational assistance to both urban and rural residents of the Illinois River Watershed. Their efforts are instrumental in delivering programs that reduce soil erosion and sedimentation and protect water quality.

In an effort to stabilize and restore severely eroding streambanks that would otherwise contribute sediment to the Illinois River and its tributaries, the Department of Agriculture is administering the **Streambank Stabilization and Restoration Program (SSRP).** The SSRP, funded under C2000, provides funds to construct low-cost vegetative or bio-engineered techniques to stabilize eroding streambanks. In FY 2004, 40 individual streambank stabilization projects, totaling $386,681 were constructed in 19 counties within the Illinois River Watershed. In all, over 24,746 linear feet of streambank, or more than 4.6 miles, have been stabilized to protect adjacent water bodies.

Another environmentally-oriented C2000 Program administered by the Department of Agriculture is the **Sustainable Agriculture Grant Program.** Grants are made available to agencies, institutions, and individuals for conducting research, demonstration, or education programs or projects related to profitable and environmentally safe agriculture. In FY 2004, over $347,000 was awarded to 17 grant recipients with programs or projects in the Illinois River Watershed to

investigate such areas as alternative crops, nitrogen rate studies, riparian management, integrated pest management, and residue management.

Potential Role in Implementing the Comprehensive Plan. Along with the Illinois DNR, the Illinois Department of Agriculture is involved with the preparation of the Comprehensive Plan and could serve as the sponsor for future Critical Restoration Projects. The department could provide funding and in-kind services to match Federal funding on some Critical Restoration Projects. In addition, it will need to continue ongoing restoration and management activities and programs to maintain their current restoration efforts. Furthermore, funding will need to expand above existing levels to meet the needs identified in the restoration plan.

viii. Illinois Environmental Protection Agency (EPA). The mission of the Illinois EPA is to safeguard environmental quality, consistent with the social and economic needs of the State, so as to protect health, welfare, property and the quality of life.

Programs and Authorities

Through programs it administers, such as **Section 319 (Non-Point Source Grant Program) of the Clean Water Act**, the Illinois EPA has completed over 130 projects to reduce non-point source pollutants to Illinois waters since 1990, and over 35 projects are ongoing. Projects include watershed planning, installation of Best Management Practices, development of educational materials, and CREP assistance.

Section 303(d) of the Federal Clean Water Act requires states to identify waters that do not meet applicable water quality standards or do not fully support their designated uses. States are required to submit a prioritized list of impaired waters, known as the 303(d) List, to the USEPA for review and approval. The CWA also requires that a Total Maximum Daily Load (TMDL) be developed for each pollutant of an impaired water body. The Illinois EPA is responsible for carrying out the mandates of the Clean Water Act for the State of Illinois.

The establishment of a TMDL sets the pollutant reduction goal necessary to improve impaired waters. It determines the load, or quantity, of any given pollutant that can be allowed in a particular water body. A TMDL must consider all potential sources of pollutants, whether point or nonpoint. It also takes into account a margin of safety—which reflects scientific uncertainty—as well as the effects of seasonal variation.

Potential Role in Implementing the Comprehensive Plan: Along with the Illinois DNR, the Illinois EPA is involved with the preparation of the Comprehensive Plan and could serve as the sponsor for future Critical Restoration Projects. The agency may provide funding and in kind services to match Federal funding on some projects and monitoring activities. In addition, it will need to continue ongoing restoration, monitoring, and management activities and programs to maintain their current restoration efforts. Furthermore, funding will need to expand above existing levels to meet the needs identified in the restoration plan.

ix. States of Indiana and Wisconsin. The States of Indiana and Wisconsin are exploring options to participate in future restoration efforts under Section 519. If they decide to become full sponsors, the missions, programs, and roles of the various State agencies will be further defined.

c. Allocation of Recommended Section 519 Projects. As a collaborative planning study effort, this Plan not only recommends actions for the Corps of Engineers, but includes restoration efforts and components that would best be implemented by other Federal, State, and local agencies. By bringing together the expertise and programs of all the appropriate agencies, collaborative planning will solve problems at the proper scale, integrate solutions, and leverage funds.

The following is a conceptual breakdown of the estimated $8 billion in restoration needs over an anticipated 50-year period by Federal agency. While the notes and associated chart focus on Federal Agency, there would be local and state cost share funding associated with most of these programs. In order to estimate the breakdown, each area of potential work was evaluated relative to the agency and program missions to identify the most likely areas. However, it should be noted that the actual funding for all agencies is subject to further agency coordination and the level of annual appropriations made by the Administration and Congress.

Assumptions on future funding by Federal agency are shown in Figure 6-2 (State and local matches are included as part of the associated Federal funds they leverage) In many cases, the local cost sharing match equals 25 to 50 percent of the total shown for each Federal agency.

- **Sediment Delivery.** Assumed 40 percent Corps of Engineers cost shared efforts with a focus on instream efforts, 40 percent USDA with a focus on detention areas, 20 percent USEPA-319 funds with a focus on water quality
- **Backwaters.** Assumed all Corps of Engineers work, majority 75 percent Navigation and Ecosystem Sustainability Program/Upper Mississippi River-Environmental Management Program (NESP/EMP) and 25 percent Illinois River Basin Restoration (Sec 519)
- **Side Channels.** Assumed all Corps of Engineers work, 75 percent NESP/EMP and 25 percent Sec 519
- **Island Protection.** Assumed all Corps of Engineers work, 75 percent NESP/EMP and 25 percent Sec 519
- **Mainstem Floodplain.** Assumed Corps of Engineers would lead effort to restore 20,000 acres under the NESP/EMP authorities out of tentative selected plan level of 75,000 total. Of the remaining 55,000 acres, it is assumed that roughly 50 percent or 27,500 acres would be funded out of Illinois River Basin Restoration Sec 519 authority and 27,500 acres would be funded through USDA's WRP and CRP program.
- **Tributary/Floodplain/Riparian.** Assumed 40 percent Corps focus on areas tied to wetland and instream structures, 40 percent USDA focus on corridor and buffers, 15 percent USEPA-319 funds, 5 percent USFWS Partners for Fish and Wildlife
- **Tributaries - Instream.** Assumed 40 percent Corps of Engineers with a focus on instream efforts, 40 percent USDA with a focus on detention areas, 20 percent USEPA-319 funds
- **Connectivity.** Assumed of the Federal funding, 100 percent Corps of Engineers 519 funding for fish passage. The potential exists that Illinois DNR – Office of Resource Conservation may implement up to 25 percent of the fish passage projects on their own, without Corps of Engineers cost share.

- **Water Level - Tributaries.** Assumed 40 percent Corps of Engineers, 40 percent USDA, 15 percent USEPA-319 funds, 5 percent USFWS Partners for Fish and Wildlife
- **Water Level - Gates.** Assumes these features will be put in place under the Corps of Engineers - NESP
- **Pool Drawdown.** Assumes 100 percent Corps of Engineers O & M Funded
- **Other Components/Monitoring.** Assumes some monitoring tasks covered by EMP/NESP ~20 percent, USGS ~7.5 percent, and USEPA ~5 percent

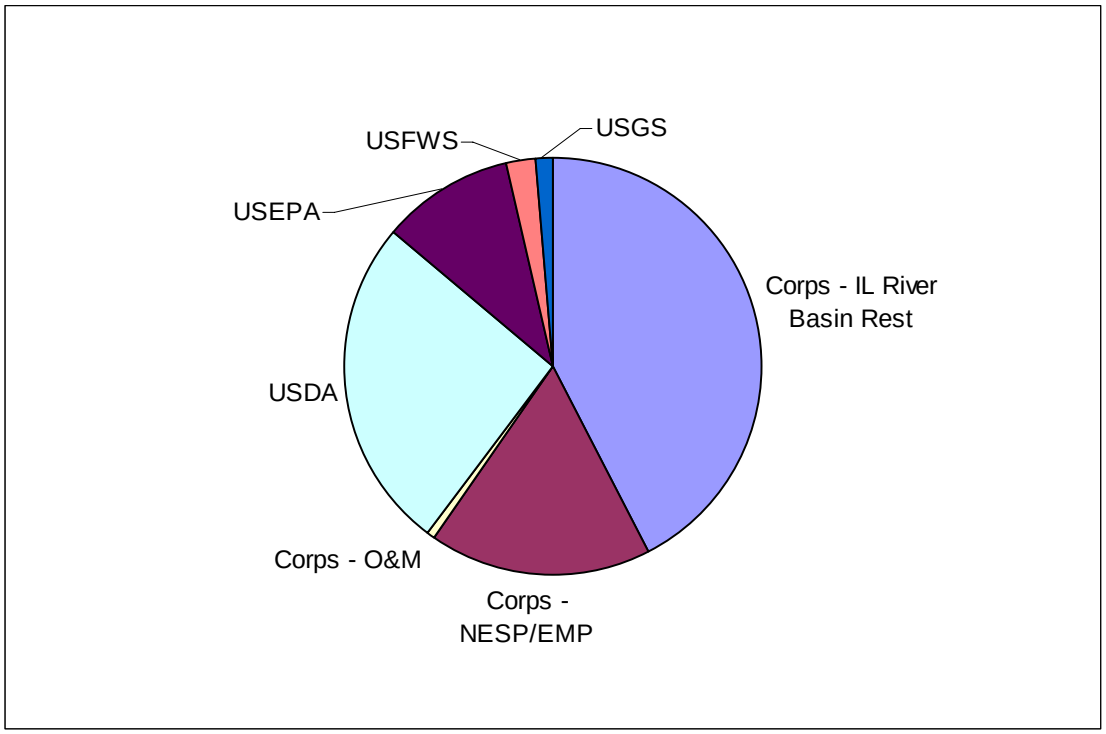

Figure 6-2. Conceptual Breakdown of Recommended Plan Funding by Federal Agency
Note: Most Federal funded projects will require non-Federal sponsor matching (state or local).

d. Regulatory Activities. In addition to interagency coordination of restoration activities, careful consideration will be given to ongoing regulatory activities in the Illinois River Basin. The implementation framework will be developed to identify constraints and tradeoffs among new projects, existing projects, and other planning and regulatory decisions that affect the implementation and effectiveness of restoration efforts. Any procedures for successful restoration of streams, wetlands, and riparian areas resulting from this restoration program will be shared with regulatory agencies and local communities for consideration in future permit and land use actions.
Despite efforts to address this important provision, it is acknowledged by many stakeholders that a more thorough and comprehensive effort is needed to ensure consistency throughout the basin. It is further recognized that the Plan is an appropriate vehicle for initiating such an effort. Potential steps towards such consistency in implementing the Plan could include:

- "Basin Consistency" reviews held approximately annually. Members of the System Team and regulatory staff could meet to review the locations of Critical Restoration Projects as well as recent and significant regulatory actions. Tracking regulatory actions using the Operations and Maintenance Business Information Link Regulatory Module (O.R.M.) database and Critical Restoration Projects using geographic information systems (GIS) would allow for joint analysis as a way of identifying opportunities for joint efficiencies and avoiding inconsistent actions.
- Early coordination between the States, Corps, and other Federal agencies through the Steering Committee and Regional Teams for projects in the basin that have potential impacts upon restoration activities.
- As the primary regulator of Section 404 permits, the Regulatory Branch of the Corps plays an important role in the success of this restoration initiative. The Regulatory Branch is frequently contacted by landowners interested in stream and wetland modifications. Interested and willing landowners could be directed to contact key members of regional teams for assistance in projects such as stream restoration (as opposed to channelization) or wetland protection and restoration (as opposed to draining/development). Wetland, stream, and forest mitigation as outlined in the Corps' recent "draft mitigation guidelines" could be emphasized for the most important areas within each tributary watershed of the Illinois River Basin.
- Special Area Management Plans (SAMPs) be developed for key areas of the basin where considerable planning and restoration activities occur. With SAMPS, the Corps of Engineers undertakes a comprehensive review of aquatic resources in an entire watershed. This approach is more environmentally sensitive than the traditional project-by-project process. The traditional approach may lead to the cumulative loss of resources over time. With the SAMP approach, potential impacts are analyzed at the watershed scale in order to identify priority areas for preservation, identify potential restoration areas, and determine the least environmentally damaging locations for proposed projects. The goal of SAMPs is to achieve a balance between aquatic resource protection and reasonable economic development. SAMPs are designed to be conducted in geographic areas of special sensitivity. These comprehensive and complex efforts require the participation of local, State, and Federal agencies.

B. IMPLEMENTATION FRAMEWORK

The following plan implementation process specifically addresses how activities proposed for funding through the Corps of Engineers would be conducted. The approach of utilizing multi-agency regional teams to review project submissions and the involvement of higher level staff from other agencies in an Illinois River Basin Steering Committee will provide a sound basis for matching proposed restoration with the authorities and funding of various agencies. Implementation activities will involve three areas: program management, Critical Restoration Projects, and technologies and innovative approaches.

1. Program Management. Management efforts would include funding for both the Corps of Engineers Districts and non-Federal sponsors for project management and coordination activities. Specifically this funding would address: (1) briefing and interaction with the Executive Committee, Steering Committee, System Team, and Regional Teams, (2) active participation at Illinois River related task forces, committees, work groups, conferences and meetings, (3) development and negotiation of programmatic cooperative agreements, (4) initial meetings and site visits for prospective projects, (5) program agreements and administration, (6) program budgets, (7) responding to program data calls, (8) program information and project solicitation, (9) annual reporting, and (10) preparation of formal documents and related support functions.

A certain level of annual funding would be necessary in order to cover system management costs. The estimated cost assumes the initial project funding increases to approximately $750,000 annually, or approximately 1.8 and 1.5 percent of the initial project costs through years 2011 and 2015, respectively. These costs include estimates of the management costs incurred by the non-Federal sponsors, which could be creditable as in-kind services.

2. Critical Restoration Projects. Section 519 currently authorizes the planning, design, and construction of Critical Restoration Projects with a current per project limit of $5 million Federal and $7.7 million total. The specific criteria and prioritization process for Critical Restoration Projects are as follows:

a. Criteria

i. Section 519 of WRDA 2000 specifies that if a restoration project for the Illinois River basin will produce independent, immediate, and substantial restoration, preservation, and protection benefits, the Corps of Engineers shall proceed expeditiously with the implementation of the project.

ii. Additional criteria have been developed as part of the Plan, including giving priority to projects that improve quality and connectivity of habitats; providing habitat for regionally significant species; reducing sediment delivery; naturalizing hydrology; maximizing sustainability; considering and addressing threats; improving water quality; considering other agency activities; and having public support.

b. Prioritization Process. The proposed assessment and implementation process seeks to create a systemic, comprehensive approach that is accessible to project partners and stakeholders. The ecological merits of proposed projects will be the most important selection factor. Other factors to be considered will include goal-specific factors, public interest and acceptability, and administrative issues. It is important to emphasize that project implementation will not proceed rigidly in strict order of numerical rankings. Flexibility is essential, and the Corps of Engineers, working with the Illinois DNR and other sponsors, and in consultation with the other agencies and stakeholders, will exercise reasonable judgment to resolve unexpected issues, respond to unforeseen opportunities, and ensure efficient program execution. Regulatory agencies will be included in the assessment and feasibility phases to better identify areas of concern as a watershed approach is taken during implementation of the program.

The four-part general implementation process is described as follows and is summarized in Figure 6-3. The steps include assessment process, feasibility process, implementation/construction process, and post-construction evaluation process. The implementation process will have four separate decision phases – initiation of assessments, initiation of Project Reconnaissance Reports (PRRs); initiation of feasibility study phase (Project Implementation Report); and identification of a recommendation and start of design/construction sequence.

It is anticipated that decisions on which projects will proceed into each of these phases will be made annually, based on funding issues. Decisions to move forward with the program at each decision phase will be made by the Executive Committee. For the Corps, the Assistant Secretary of the Army (Civil Works) [ASA (CW)] will approve the project feasibility report. The MVD working with LRD will retain responsibility for decisions regarding project submissions to Corps HQUSACE and the ASA (CW) on all programming and budgetary decisions. Ultimately, some delegation of approval authority to MVD and the Districts for projects is anticipated.

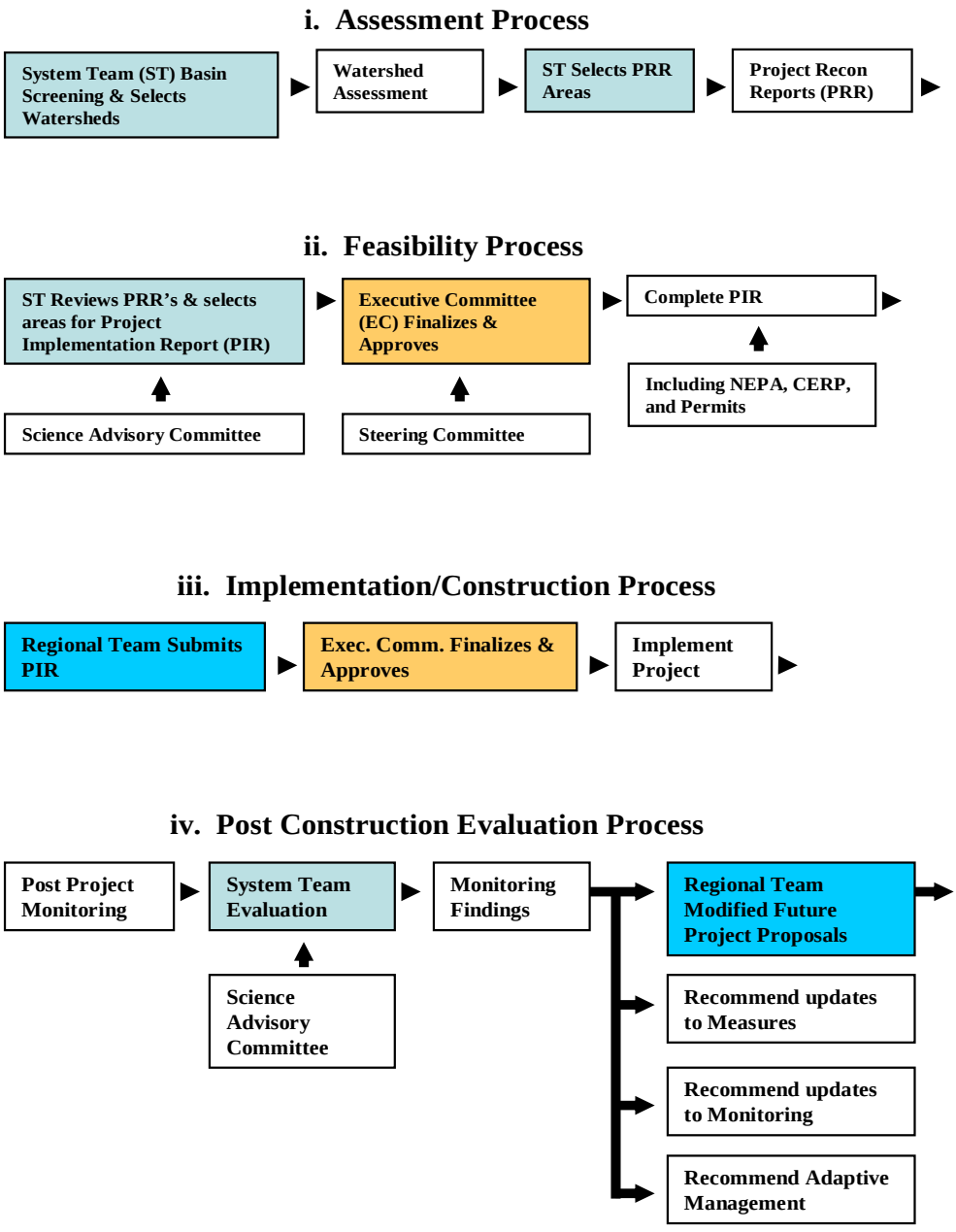

Figure 6-3. Process Diagrams for Project Implementation Phases

i. Assessment Process

Basin Screening. The initial identification and selection of the watersheds and pools for assessment will be conducted by the System Team using the system prioritization criteria, with input from the regions and other study committees. The System Team will perform an initial screening of subwatersheds in the basin using existing information, and will rely heavily on GIS data. Mainstem Illinois River evaluations will be coordinated closely with the activities of the NESP and EMP programs. Screening will specify problems and restoration opportunities, and identify specific areas (sub-watershed or pool segments) in need of a more detailed assessment. The primary criteria are shown on Table 6-3 and include: improve quality and/or increase area/connectivity of high quality habitat areas, sediment reduction to the Illinois River, presence of threats (population increase, water quality), other agency efforts, and public support (local plan/partnership group). The most promising watersheds identified at this level will be recommended for Watershed Assessments.

An initial screening was conducted in 2005 to identify additional Critical Restoration Projects. Due to the current time and funding constraints, only those basin areas specifically nominated for consideration by the Illinois DNR or other potential sponsors were considered. However, future basin screening efforts would include the entire basin.

Table 6-3. Basin, Watershed, and Project Prioritization Process

Criteria Description	Basin Screening	Watershed Assessment
Location in IL River basin	Priority/greater initial weighting will be placed on watershed draining into Peoria Pool and upstream, then Alton & LaGrange pools	
Reduce sediment delivery to Illinois River	Existing data from past reports and system study on delivery	Field verification of Phase I factors. Field investigation of geomorphological attributes—i.e. locating headcuts and monitoring erosion of banks.
Improve quality and/or increase area/connectivity of Biologically Significant Areas (BSA)/Resource Rich Areas (RRA)	Office assessment of existing biological and GIS data from Corps, DNR, TNC, EPA. Contiguous habitat.	Field verification of Phase I factors. Field investigation of biological attributes (ability to meet system patch size, spacing, connectivity, etc. goals).
Improve, protect and expand habitat for regionally significant species (including T & E), patch size and spacing	Number of threatened/ endangered species	Identification of specific species and potential to benefit.
Increase base flows and/or decrease peak flows	Preliminary Assessment	More detailed analysis
Threats to Ecological Quality/Integrity	Consider population density, pop. Growth rates, percent impervious cover, and water quality (303d)	Field verification of Phase I factors. Land use changes, increased isolation, invasive species
Other Agency Efforts	Identify known areas of other agency restoration activity	Identify specific other agency actions and potential to collaboratively address problems.
Public support	Existence of local plan or ecosystem partnership group	Identified support in progress, landowner interest
Sustainability		Assessment of potential to be self sustaining/add to system self sustaining.

Watershed Assessment. The first step in initiating site specific work in the basin will be to conduct detailed Rapid Watershed Assessments and Pool Assessments for portions of the basin evaluating ecologic, geomorphologic, and hydraulic conditions (typically at the small/sub watershed level ~100 square mile basins). These areas will be selected based on a basin screening conducted by the System Team using system prioritization criteria, with input from the regions and other study committees. The emphasis of the assessments will be on evaluating and more clearly defining the more localized areas where system restoration should be accomplished and types of measures needed throughout the basin. As a result, Watershed Assessment Reports will be submitted on each area evaluated, verifying the basin screening criteria; identifying problems, opportunities, and potential projects; and relating potential projects to the program goals. Table 6-3 outlines the screening prioritization criteria. In addition, these reports will gather more specific data allowing further project definition and selection of reconnaissance areas. Regional Teams will be asked to submit existing assessments from other sources to assist in the process. As they are completed, the Watershed Assessments will be shared with other agencies through the Steering Committee and Regional Teams to evaluate which agencies are best able to address the needs identified.

The Watershed Assessment Reports will be evaluated by the System Team. Projects identified through the watershed assessment to proceed as CRP's under the Corps 519 authority will move into the next phase; preparation of a Project Reconnaissance Report (PRR). The System Team will propose areas for PRR investigation and will solicit input and recommendations from the State Surveys and/or Science Advisory Committee (SAC). The Watershed Assessments will be used to scope projects to fit the current project dollar cap ($5 million Federal; $7.7 million total). Multiple projects may result from one assessment, or several assessments may be combined for one project. The Executive Committee will review and approve these as part of setting the annual work plan.

Project Reconnaissance Reports (PRR). The final step in the assessment of projects is the development and submission of Project Reconnaissance Reports (PRRs) for the selected areas to better define the extent, cost and benefits. Project Reconnaissance Reports (PRRs) will be prepared primarily by Corps and Illinois DNR staff in coordination with the Regional Teams, including the involvement of watershed partnerships, local governments, and non-governmental organizations NGOs. The PRRs will result in well developed project concepts. They will include information on problems, opportunities, future without project conditions, alternatives, costs, and an assessment of how the project meets site-specific, sub-watershed, watershed, pool segment, pool and system goals. A cost-sharing sponsor must be ready to support the project for it to be considered for feasibility.

ii. Feasibility Process (Project Implementation Report)

Selection of Projects for Feasibility. The feasibility process will be initiated on the most promising projects following review of the PRRs. The System Teams will conduct a system-level evaluation and sequencing of the projects based on the data in the PRRs. The purpose of the system evaluation will be to propose which projects best meet system ecological needs and goals. In addition to the prioritization criteria outlined in Table 6-3, additional system criteria will consist of the following, but may be modified with the concurrence of the System Team:

- Measures of how well the project meets system goals as identified in the system study, and watershed and pool assessments, monitoring trend data, and other pertinent databases
- Consistency with other habitat goals such as those identified in master plans, the North American Waterfowl Management Program, U.S. Shorebird Conservation Plan's Upper Mississippi Valley/Great Lakes Regional Shorebird Conservation Plan, Partners in Flight Bird Conservation Plan, State watershed and river programs, national hypoxia/nutrient plans, etc.
- Natural process considerations, such as hydrology, sedimentation, flow distribution, floodplain connectivity, fire, etc.
- Sequencing of projects on the basis of their anticipated ecological and geomorphic interrelationships
- Focus on the quality of the habitat and habitat patch size, spacing criteria, connectivity
- Focus on the presence of threats to the ecological integrity
- Considerations of the project's habitat sustainability and long-term viability
- Risk and uncertainty of project success
- Public support

Once the system evaluation is complete, the highest rated projects will be presented to the Executive Committee. The Executive Committee will review the information collected to date and consider other factors relating to policy and administrative issues (e.g. partnership opportunities, funding availability, and mix of projects). This step will end with recommendations from the Executive Committee on which projects should proceed into the feasibility phase and develop site-specific recommendations.

Feasibility Study. Each Critical Restoration Project selected for further study will be evaluated through a separate decision document (Project Implementation Report). The evaluations will define benefits such as habitat units created, stream miles of connectivity, tons of sediment reduced, and other measures. Cost Effective and Incremental Cost analyses will be used to evaluate the benefits and costs of various project alternatives and to identify a recommended plan. For any recommended plan, the evaluations must show that the outputs of each project outweigh its respective costs. The feasibility phase will be cost shared 65/35 with the sponsor.

iii. Implementation/Construction Process. As feasibility study efforts are completed, the reports will go through a formal HQUSACE approval process (Section c, *Corps Procedures for Processing Critical Restoration Project.*) the local sponsors will also review the reports. Once approved, the recommended plans will be forwarded to the Executive Committee to identify a preferred implementation/ construction sequencing. Included in the implementation phase is the actual implementation construction, monitoring, and adaptive management.

If more projects are awaiting implementation than funding allows, it is reasonable to shift the evaluation criteria to the question of which administrative mix of projects is appropriate to meet long-term ecological sustainability of the Illinois River Basin and maintain public interest and participation. The Corps and Illinois DNR will develop a proposed "Illinois River Basin

Restoration Program Plan" based upon the high priority ecological projects resulting from the previous two-stage ecological screening process and other factors relating to policy and administrative issues. The Corps and State Program Managers will lead the Program Planning effort for the Executive Committee.

In selecting the sequenced ecological projects, a variety of policy and administrative considerations will be considered to determine an optimal project mix. These considerations will include:

- Ability to provide system benefits
- Combination of innovative and proven techniques, considering applicability of innovations to future projects and replicability
- Variety in types of measures
- Geographic distribution
- Yearly funding
- Maintaining minimum district delivery capability
- Cost sharing
- Public support
- Readiness (NEPA, permits, land availability)
- Leveraging non-IRBR funds
- Compatibility with other river uses
- O&M requirements

The program plan will be provided to the Steering Committee for review and comment. Coordination will also occur with other groups including the Regional Teams, System Team, Stakeholders, and others regarding various factors affecting project implementation.

Future PCAs will be modeled after the Peoria Riverfront Development – Upper Island PCA, approved in September of 2005. Overtime, it is anticipated that a model PCA will be developed for the program from the initial projects, allowing delegation of PCA approval in future years.

iv. Post-Construction Evaluation Process. Following actual construction, any planned post-construction monitoring would be conducted. The results of this monitoring will be provided to the System Team to assess the overall success of various types of projects and measures, assess the monitoring approach, and recommend adaptive management actions if necessary. The System Team will provide results to the regional teams to consider in modifying future projects.

c. Corps Procedures for Processing Critical Restoration Projects. Future actions necessary for project approval, budgeting, and implementation are summarized below. MVD will provide overall management and budgeting for the program, in accordance with the Memorandum of Understanding executed January 4, 2006 by the Executive Committee. The Comprehensive Plan establishes a process for prioritization of projects, program management, and processing. Reports, Project Cooperation Agreements (PCAs), and other submissions to higher authority will be processed through the division where the project is located (MVD or LRD). The MVD as the overall program lead and the Rock Island District as the Regional Program Lead should be kept aware of the status of In Progress Reviews (IPR) and HQUSACE issues on projects in LRD.

i. As project reports near completion, an IPR will be scheduled with HQUSACE and the appropriate division to discuss report findings. An information package similar to that provided for an Alternative Formulation Briefing will be prepared for the meeting. This requirement may be waived as experience is gained in the program.

ii. The final report will be provided to the appropriate division to conduct a policy compliance review. For initial project reports submitted, the division will conduct this review prior to review by HQUSACE. As experience is gained through the program, concurrent review will be conducted with HQUSACE.

iii. Upon completion of the policy compliance review and endorsement by the appropriate division, the report will then be submitted to HQUSACE for submission to the Office of the ASA(CW) for approval.

iv. Plans and specifications can be initiated upon issuance of the division endorsement to HQUSACE, or as further noted in this paragraph. When concurrent review with HQUSACE is put in place, the appropriate division can provide instructions for initiation of Plans and Specifications when it is satisfied that policy and procedural requirements are met prior to full completion of the review process. Actual Plans and Specifications initiation will be subject to funding availability, which shall be coordinated with the Rock Island District as the Regional Program Lead for inclusion in the annual work plan and approval by the Executive Committee.

v. Subsequent to report approval by ASA(CW) and Construction General funding being provided by the Congress, a PCA must be negotiated and executed with the non-Federal sponsor. The PCA describes the project, the items of local cooperation, and the responsibilities of the Government and the non-Federal sponsor in the cost sharing, financing and execution of the project.

vi. The Corps can submit a budget request for Construction General funds for any projects approved by ASA(CW) by August 1 of the program year less 2 years. The initial new start submission is made by June 1 each year, with changes possible until August 1. There are no construction funds in the FY 06 budget for this program. In the case of FY 07, construction funds could be budgeted for projects approved by August 1, 2005 (Peoria Riverfront Development, Upper Island).

vii. The Corps will complete final design and Plans and Specifications for the project construction.

viii. The non-Federal sponsor will be required to provide all lands, easements, rights-of-way, relocations and disposal areas necessary for project construction and OMRR&R.

ix. Bids for construction will be advertised and contracts awarded upon approval of the report by ASA(CW), appropriation of CG funding, and execution of the PCA.

xi. Upon completion of construction, the project will be turned over to the non-Federal sponsor, who will be responsible for OMRR&R in accordance with guidelines in the PCA and the OMRR&R manual as furnished by the Corps.

3. Status of Critical Restoration Projects. Restoration of the Illinois River Basin requires the identification and implementation of projects within the watershed and along the course of the river that

repair past and ongoing ecological damage so that a more highly functioning, self-sustaining ecosystem can develop within the basin. Critical Restoration Projects will produce immediate ecological benefits, will help evaluate the effectiveness of various restoration methods before system wide application, and make best use of the current local and State interest in ecosystem restoration within the basin. Construction of Critical Restoration Projects will allow sponsors and the public to see immediate results that will help to provide broad support for future projects. The Corps of Engineers will implement these Critical Restoration Projects in collaboration with the non-Federal sponsor and other Federal and local agencies.

Feasibility level investigations for six site-specific projects were initiated under the Illinois River Ecosystem Restoration Study. The list was expanded to eight following further evaluation at Pekin Lake, which identified two separate study efforts and inclusion of the first separable increment of the Peoria Riverfront Development Project. These projects will produce independent, immediate, and substantial restoration, preservation, and protection benefits and are being completed and implemented as the initial Critical Restoration Projects of the Illinois River Basin Restoration Project. Eight additional projects were added in 2006 (figure 6-4). These projects are being developed as stand alone documents with separate evaluation and coordination of environmental and cultural effects. Future Critical Restoration Projects will be tiered from the programmatic Environmental Assessment contained in this document.

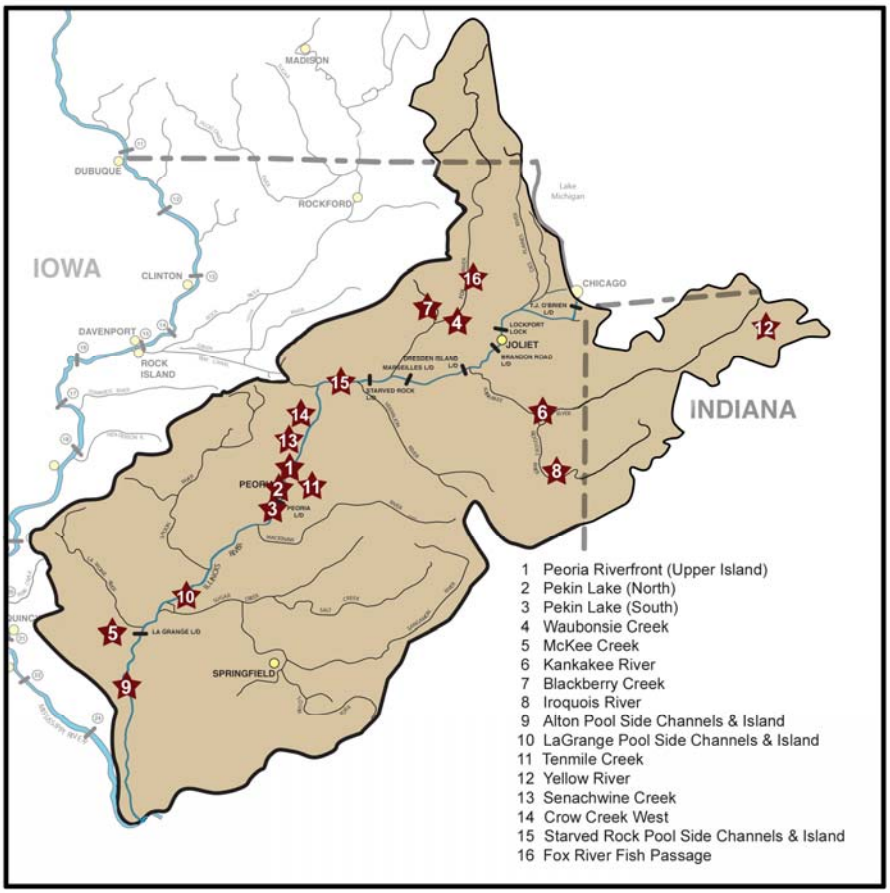

Figure 6-4. Critical Restoration Project Locations

a. Peoria Riverfront Development - Upper Island. The project area includes upper portions of Lower Peoria Lake, RM 166 and is adjacent to the Cities of Peoria and East Peoria. Peoria Lake is the largest bottomland lake in the Illinois River Valley and has experienced loss of depth similar to other Illinois River backwater lakes. Loss of aquatic habitat due to sedimentation is the greatest threat to the healthy function of Peoria Lake. The principal goal is to improve depth diversity enhancing aquatic habitat in Peoria Lake with ancillary recreational benefits. The recommended plan for the Upper Island includes dredging approximately 54 acres within Lower Peoria Lake to create deepwater habitats and constructing one 21-acre island. The project costs are estimated at $7.5 million. This effort is consistent with system goals of restoring aquatic habitat diversity of side channels and backwaters, and improving floodplain and habitats and functions. The expected benefits clearly outweigh the investment cost. The feasibility phase is complete, and design is nearing completion.

b. Pekin Lake Northern Unit. Pekin Lake Northern Unit is the northern portion of a backwater lake complex located adjacent to the Illinois River at RM 153-156. The backwater lakes and side channels once provided large areas of deep and shallow water habitat, sloughs, and forested and non-forested wetland habitats. Sedimentation and willow invasion have significantly reduced aquatic and wetland plant production. The project will allow for management of water levels for habitat and remove large areas of willow trees to increase moist soil plant production. The improved wetland will provide a reliable food source and critical stopover along the internationally significant Mississippi River Flyway. The project will maintain a historic heron rookery and slow the anticipated loss of the backwater lake. The project costs are estimated at $6.9 million. This effort is consistent with system goals of restoring aquatic habitat diversity of side channels and backwaters; improving floodplain, riparian and aquatic habitats and functions; and restoring hydrologic regimes on 681 acres. The feasibility phase is complete, and design is nearing completion.

c. Pekin Lake South. Pekin Lake Southern Unit is the southern portion of a 1,200-acre backwater lake complex located adjacent to the Illinois River at RM 153-156. The area once provided fish over wintering habitat that has since been degraded by excess sedimentation from the Illinois River. Currently, there are no existing overwintering fish habitats within approximately 20 miles of Pekin Lake State Fish and Wildlife Area. Higher water levels throughout the system have nearly eliminated the mast producing hardwood forests in the Illinois floodplain, and completely at Pekin Lake. The project will address the lack of over wintering fish habitat and the declines in diverse bottomland forest areas. The alternatives considered include dredging for overwintering habitat with the placement of some of the dredged material onsite to create suitable areas for mast producing trees. The project costs are currently estimated at $7.6 million. This effort is consistent with system goals of restoring aquatic habitat diversity of side channels and backwaters; and improving floodplain, riparian and aquatic habitats and functions on 390 acres. The feasibility phase is complete, and design is nearing completion.

d. Waubonsie Creek. Waubonsie Creek is located in northeastern Illinois. The creek has a number of low-head dams that prevent movement of fish from the Fox River into approximately 7 miles of potential spawning and nursery habitat in Waubonsie Creek. The project will restore fish access to quality spawning habitat, allow fish recolonization of the creek following high flow, restore riparian wetlands, improve aquatic habitat, and provide off-channel refuge for fish during high flow events. Total project costs are estimated at $2.2. This effort is consistent with system goals of improving floodplain, riparian and aquatic habitats and functions; and restoring

longitudinal connectivity on the tributaries. The feasibility phase is complete, and design has been initiated.

e. Kankakee River - Main Stem. The Kankakee River is a high quality river located in northeastern Illinois and northwestern Indiana. The Kankakee River carries an excessive sediment load, and habitat quality in the river is expected to decline due to sedimentation. Side channel and pool areas in this reach are expected to continue to lose depth and habitat diversity as cobble and gravel substrates become covered by sand. The project will restore and maintain deep-water and high quality riffle habitat critical to many state-protected species along 30 miles of the Kankakee River. Total project costs are estimated at $6.5 million. This effort is consistent with system goals of reducing sediment delivery to the Illinois River and improving floodplain, riparian and aquatic habitats and functions. The feasibility phase is ongoing.

f. Iroquois River. The Iroquois River is located in eastern Illinois and western Indiana and is a tributary to the Kankakee River. Modifications of tributaries through ditching and straightening have increased velocities, bed and bank erosion, and the sediment load delivered to the Iroquois River and eventually the Illinois River. Once the fine sediment is mobilized, it remains suspended until much lower flow velocities occur. It is transported into the Illinois River and drops out in backwater lake areas. The sedimentation of these highly productive backwater lakes is recognized as the greatest threat to the Illinois River ecosystem. Channel instability also negatively affects the habitat value of the tributary stream and its riparian corridor. The project will reduce delivery of sediment to the Illinois River, stabilizing a portion of the Iroquois river basin by addressing a head cut on one of its tributaries, Sugar Creek. The project will maintain aquatic habitat in 10 miles of tributary stream by preventing degradation associated with upstream progression of channel incision. Stream stabilization structures will be designed to provide in-stream habitat. Total project costs are estimated at $6 million. This effort is consistent with system goals of reducing sediment delivery to the Illinois River; improving floodplain, riparian and aquatic habitats and functions; and improving water and sediment quality in the Illinois River and its watershed. The feasibility phase is on hold pending funding.

g. McKee Creek. McKee Creek is a direct tributary to the Illinois River located in west-central Illinois. Modifications of McKee Creek and its tributaries through ditching and straightening have increased velocities, bed and bank erosion, and the sediment load delivered directly to the lower Illinois River. The stream has incised channels and high rates of lateral migration. The lower 30-mile reach erodes an estimated 100,000 tons of bank material per year. The project will prevent delivery of an estimated 2.5 million tons of sediment to the Illinois River over the project life by stabilizing head cuts on the lower 10 miles of McKee Creek. The project will maintain and improve aquatic habitat in over 30 miles of stream by preventing degradation associated with upstream progression of channel incision, widening, and bank collapse. Stream stabilization structures will be designed to provide in-stream habitat. Total project costs are estimated at $6.3 million. This effort is consistent with system goals of reducing sediment delivery to the Illinois River; improving floodplain, riparian, and aquatic habitats and functions; restoring hydrological regimes; and improving water and sediment quality in the Illinois River and its watershed. The feasibility phase is on hold pending funding.

h. Blackberry Creek. Blackberry Creek is located in northeastern Illinois and is a tributary of the Fox River. Currently, the stream has high quality habitats, but a 10-foot dam near the confluence with the Fox River severely limits fish, mussel, and macroinvertebrate access to this habitat. The project will restore fish passage at the Blackberry Creek Dam at an estimated total cost of $6.3

million. The project will restore access to 30 miles of quality stream habitat and allow fish recolonization of the creek following high flow events. This effort is consistent with system goals of improving floodplain, riparian, and aquatic habitats and functions and restoring longitudinal connectivity on the tributaries. The feasibility phase is on hold pending funding.

i. Additional Critical Restoration Projects. Recently approved projects include:

- small watershed restoration on Senachwine Creek, Crow Creek West, Tenmile Creek, and Yellow River
- a major tributary reach of the Fox River
- side channel and island restoration in Starved Rock, La Grange, and Alton Pools of the main stem Illinois River

4. Initial Project Schedules through 2011(Tier I) and 2015 (Tier II). The Plan recommendations call for continuing restoration efforts under a tiered approach utilizing the existing authority of Section 519. The Corps of Engineers cost shared restoration efforts would begin with $153.85 million in funding through 2011 (Tier I) increasing to $384.6 million in restoration efforts through 2015 (Tier II).

This section provides additional detail on proposed Tier I efforts. The purpose of this tier is to begin restoration efforts and demonstrate the benefits of the various measures and project components prior to seeking additional funds. The System Team worked with the sponsors and other agencies to identify the projects, technologies and innovative approaches components, and management efforts that would make up the first $153.85 million in restoration efforts ($100 million Federal funds). Depending on project progress and Federal and State funding, Tier I is anticipated to cover work on the program from now until the first Report to Congress is completed in the 2011 timeframe. Tier II will be developed in greater detail in the coming years based on the lessons learned from Tier I.

Tier I restoration efforts will include the original eight Critical Restoration Project along with a number of newly identified projects. Areas of work were selected based on the project implementation framework and basin screening criteria. Appendix E presents a proposed implementation schedule for planning, design, and construction of Critical Restoration Projects as well as program management and other specific components. While some work will occur throughout the basin, restoration efforts will focus on the upper watershed and, in particular, the Peoria Pool and tributaries and the Kankakee River Basin. These high value resource areas were selected due to their quality and location in the upper reaches of the basin, which has the potential to more rapidly demonstrate the effectiveness of the various projects.

5. Adaptive Management Principles. It is expected that implementation of the Plan components will provide restoration outputs as planned. However, due to the uncertainties inherent in ecosystem restoration, adaptive management is an essential strategy. The U.S. Army Corps of Engineers recognizes the need for adaptive management as one of the tools for successfully developing projects in the aquatic ecosystem restoration mission area. Engineering Circular (EC) 1105-2-210 (21) (a) dated 1 June 1995, states, *"Because of the relative newness of restoration science and uncertainty in ecosystem restoration planning, theories, and tools, success can vary due to a variety of technical and site specific factors. Recognizing this uncertainty, it is prudent to allow for contingencies to address restoration problems during, or after, project construction. To accomplish this, a technique called 'adaptive management' should be considered for inclusion in restoration projects recognized during planning to have the*

potential for uncertainty in achieving restoration objectives."

In addition, current planning guidance from Engineering Regulation (ER) 1105-2-100, Planning Guidance Notebook, (April 2000) states, *"For complex specifically authorized projects that have high levels of risk and uncertainty of obtaining the proposed outputs, adaptive management may be recommended."*

Initial measures implemented for the Illinois River restoration will be based on scientific research and lessons learned from past efforts on the Illinois and other river systems. However, knowledge of ecosystem function is frequently inadequate to provide clear answers to restoration and management problems. Adaptive management should be used to help reduce the uncertainty and risk of ecosystem recovery actions and to increase the knowledge about ecosystems. Adaptive management requires that all ecosystem recovery actions be viewed, implemented, and monitored as tests of hypotheses about ecosystem responses to restoration actions. Under adaptive management, reducing uncertainty becomes an objective of management, the ecological effects of restoration are monitored, and policies are adapted depending on observations. Adaptive management has the added benefit of integrating science and resource management, ensuring applied science is well directed and scientific advances are transferred to managers.

The success of an adaptive management approach will require an open management process that includes partners and stakeholders during the planning and implementation stages. Project-specific monitoring should be designed and implemented so that information returned can be used to make changes in the existing project. Information on the success of ecosystem recovery actions should be used to design future projects. Adaptive management should be used to revise and update restoration goals and objectives. Environmental thresholds or triggers are essential in adaptive management. These must be agreed upon ahead of time, must be measurable, and must be unequivocally linked to goals of the ecosystem recovery action or program. Science, monitoring, and management institutions should be engaged in adaptive management. In addition, scientists, managers, and policy makers must be prepared to accept that some actions will not go as expected.

One of the main benefits of adaptive management is the development of an iterative and flexible approach to management and decision-making. The results of the restoration activities can be monitored and future management decisions can be informed by the outcomes of previous decisions. Another important benefit of adaptive management lies in the opportunity for scientists and managers to collaborate in the design of state-of-the-art solutions to meet the challenges of managing complex and incompletely understood ecological systems. Alternative management actions can be stated as hypotheses and addressed from the perspectives of rigorous experimental design and decision analysis. The probable outcomes of management alternatives and the values of such outcomes can be estimated in relation to management goals and objectives. The adaptive approach recognizes that uncertainty is unavoidable in managing large-scale ecological systems. Importantly, uncertainty can be analyzed and exploited to identify key gaps in information and understanding. The results of such analyses of uncertainty can be used to efficiently allocate limited management resources to new research or monitoring programs.

The adaptive management process is a six-step cycle (Figure 6-5) and emphasizes that successful adaptive management requires managers to complete all six steps.

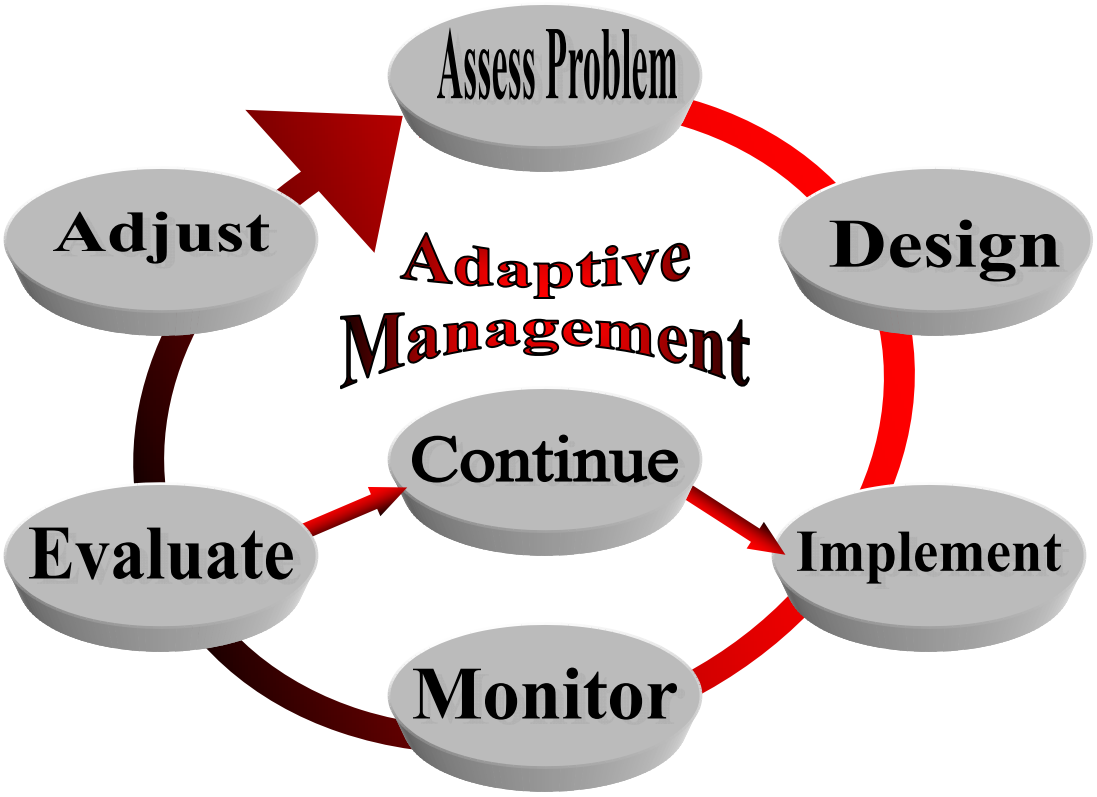

Figure 6-5. Adaptive Management Process

Some of the differentiating characteristics of adaptive management include:

- acknowledging uncertainty about what policy or practice is "best" for the particular management issue;
- thoughtfully selecting the policies or practices to be applied (the assessment and design stages of the cycle);
- carefully implementing a plan of action designed to reveal the critical knowledge that is currently lacking;
- monitoring key response indicators;
- analyzing the management outcomes in consideration of the original objectives; and
- incorporating the results into future decisions.

Within the scientific community, ecosystem restoration is viewed as an evolving science. Since such projects deal with living organisms, there is both risk and uncertainty regarding the outcome. There is less certainty of performance than in other mission areas, such as flood damage reduction. This uncertainty requires the organization to accept, plan, and manage for risk, even risk that may result in

failure. This allowance for risk is not a substitute for good planning or avoidance of requirements, but is the assessment of taking risks to test methods that may yield better outcomes than current approaches. Monitoring and adaptive management allow the adjustments that reduce the risk of failure and provide "insurance" for the monetary investment. When the objective of the restoration project is to increase biodiversity, there may not be an obvious best course of action, particularly if there is not prior ecosystem management experience to utilize. Monitoring and adaptive management then provide the background information that is needed to move the project towards the most appropriate and effective solution.

Incremental implementation allows testing of hypotheses (e.g. extent to which the identified system goal are the limiting factors and additional detail on their interrelationships), thus providing an essential means for learning more about ecological cause and effect relationships with much greater certainty than is possible with ecological models. Incremental implementation also provides opportunities to refine plans to more effectively meet overall program objectives. An incremental process is required for the Illinois River Basin Restoration Program because of the large and complex nature of the ecosystem and its problems, and because of the uncertainties regarding the ecological responses that will occur as more natural hydrological and sediment conditions are established. These uncertainties are inherent where major alterations in the region's spatial scale and landscape have substantially changed ecological relationships among species, habitats, and communities throughout the region. If an unexpected response occurs, it becomes the basis for reviewing and revising the operating set of hypotheses, which results in an ever-improving focus on the actions required to meet the ultimate restoration objectives.

Recommendation

Based on the large study area, complexity of the ecosystem restoration, and the opportunities for increased cost effectiveness over the long duration of the program, adaptive management for the Illinois River Basin Restoration Project should be 7.5 percent of the initial construction costs through 2015, which is approximately 5 percent of total program costs through 2011 and 5.6 percent through 2015. It is anticipated that this adaptive management approach will decrease project costs in the long run, improve ecosystem outputs, protect Federal investments, and provide valuable information to make higher quality future projects more cost effective. The cost share for adaptive management is the same 65 percent Federal and 35 percent non-Federal cost share as the original project. This recommendation will be reviewed periodically throughout the life of the program and will be adjusted accordingly.

The intent of this program will be to use active adaptive management and the systemic and project-specific monitoring programs to reduce overall project costs below the current estimates. This systematic process of modeling, experimentation, and monitoring will compare the outcomes of alternative restoration or management actions and make modifications as needed to ensure project success. Specifically adaptive management is recommended to: (1) ensure projects are functioning as designed and providing the maximum benefit to the ecosystem, (2) provide the ability to undertake state-of-the-art approaches and ensure their success, (3) take into account the results of project monitoring in order to improve future restoration projects, and (4) result in long term savings to future projects by determining the most effective restoration methods. For example, monitoring and adaptive management of backwater restoration projects are anticipated to help determine the best configuration and extent of restoration to provide the most sustainable projects. This will provide an approach to evaluate and more precisely identify the necessary level of restoration, potentially providing millions of dollars in implementation and O&M cost savings over the life of the project. Various methods would be compared in their effectiveness, the bio-response generated, and long-term sustainability for each measure. Specific areas for adaptive management include:

- **A variety of measures to reduce sediment delivery.** For example, riffle-pool structures are perceived as the most environmentally beneficial measure to reduce sediment delivery in unstable streams. However, other options may provide similar stabilization with greater habitat benefits.

- **Different dredging configurations and scales, and placement options for backwater restoration.** During alternative plan formulation, based on current scientific research, it was assumed that dredging 40 percent of each backwater area was most ecologically beneficial as well as being more sustainable. However, a variety of scales should be evaluated to test potentially less costly but more or equally beneficial options.

- **A variety of measures to restore floodplain areas.** Measures to consider include controlling non-indigenous and invasive species, utilizing the existing seed bank, and, where necessary, using various scales and densities of planting to maximize benefits and reduce implementation costs, as well as options to reconnect the floodplain to the river for floodplain restoration.

- **Modify in-stream aquatic restoration to compensate for changes in land use within the watershed that may affect hydrology.** Improving the design of channel structures could also be a high priority area for adaptive management and subsequent cost savings, drawing on Section 32 of the Streambank Erosion Control Demonstration Program (USACE 1981).

C. TECHNOLOGIES AND INNOVATIVE APPROACHES COMPONENT

The Plan recommends authorization to begin implementation of the specific components called for in Section 519 (WRDA 2000)(b)(3). The specific components include: (1) development and implementation of a program for sediment removal technology, sediment characterization, sediment transport, and beneficial uses of sediment, (2) development and implementation of restoration projects, (3) the development and implementation of a long-term resource monitoring program, and (4) the development and implementation of a computerized inventory and analysis system. Component B is addressed through the ongoing Critical Restoration Project authority and proposed modifications to the per project limits, etc. Authorization of the other three components is proposed as part of a single Technologies and Innovative Approaches Component. The following section describes the need for these components and recommendations for implementation.

1. Illinois River Basin Monitoring Program (IRBMP). The purpose of the Illinois River Basin Monitoring Program (IRBMP), which includes both the long-term resource monitoring program and the supporting computerized inventory and analysis system, is to evaluate the status of the Illinois River system in relation to the goal of "*a naturally diverse and productive Illinois River Basin that is sustainable by natural ecological processes and managed to provide for compatible social and economic activities"* and provide insight into mechanisms affecting achievement of that goal. This purpose drives the design and implementation of the program so that monitoring efforts are able to communicate ecosystem status and provide input to guide ongoing project implementation.

Specific objectives of the IRBMP are to:

a. improve understanding the Illinois River Basin ecosystem, including establishing a pre-project reference state and establishing variability for each of the performance measures;

b. measure, by the use of data collected, responses as projects are constructed and implemented;

c. monitor trends and effects on selected resources;

d. provide a basis for identifying options for improvements in the design and operation of projects and components (for use in adaptive management);

e. support scientific investigations designed to increase ecosystem understanding, establish cause and effect relationships, and interpret unanticipated results; and

f. develop reports on the status and trends of the Illinois River Basin ecosystem and restoration progress for the public, stakeholders, agencies, the State of Illinois and Congress.

In summary, the IRBMP is designed to help establish the framework for measuring and understanding system responses to restoration, to help determine how well the program is meeting its goals and objectives, and to help identify opportunities for improving the performance of the program where needed. The monitoring identified in the IRBMP relies and builds on monitoring already being conducted by multiple agencies and identifies new monitoring required for a complete interpretation of ecosystem responses.

Successful implementation of the IRBMP is dependent on two key assumptions:

- Existing monitoring will continue with existing funding sources (i.e., the IRBMP should not replace ongoing agency efforts that are essential to the plan implementation including the UMR-EMP and State of Illinois monitoring efforts)

- Partnering agencies will contribute funding and/or will participate in implementation of the IRBMP (e.g. particularly the USGS and USEPA).

a. Plan Structure. The conceptual model for the Illinois River Basin Restoration Program is based on the understanding that there are a number of specific factors that are currently undermining or limiting the integrity of the ecological systems within the Illinois River Basin. Conceptually, in order to restore or improve the ecosystem function, all of these system-limiting factors must be addressed to some degree, and it follows that, if these are sufficiently addressed, overall ecosystem function will improve. Since construction of individual projects is the mechanism by which goals are addressed, project-specific monitoring is required to evaluate the effectiveness of various project attributes to advance each goal. A second level of monitoring (goal-level monitoring) would evaluate the progress in each of the supporting goals, indicating progress for each particular system-limiting factor identified by the project team. Since ecological integrity is the overarching goal that is supported by the other goals, evaluating the progress toward systemic integrity suggests overall program success (Figure 6-6). Such system-level monitoring would be designed to develop a snapshot of the overall system health. Finally, the program should recognize the need for limited-duration focused studies to evaluate specific issues that arise. These may include efforts to better understand particular system-limiting factors and their interrelationship, evaluate restoration measure effectiveness, refine monitoring needs and techniques, and develop and refine models.

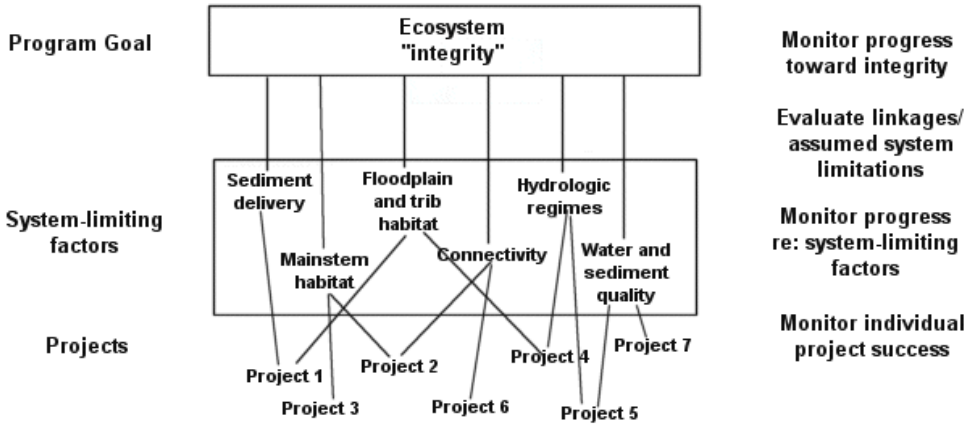

Figure 6-6. Conceptual Model of Illinois River Basin Restoration Project with Monitoring Requirements

i. Project-Level Monitoring. The purpose of this level of monitoring is to determine if the implemented projects are providing the intended physical and biological benefits. For example, this monitoring should determine if sediment projects are reducing excess sediment delivery and if backwater projects are improving ecological functions in backwaters. Monitoring results will be utilized for adaptive management by guiding design improvements to better meet ecosystem goals.

ii. Goal-Level Monitoring. Each goal is associated with a set of measurable objectives. Goal-level monitoring accounts for the progress toward each objective and thereby assesses the degree to which goals are being attained. The metrics to be monitored are therefore drawn directly from the objectives (e.g. sediment delivery, water level fluctuations, and acreage restored). If it is discovered that objectives are being met but that comparable improvements are not observed in system-level indicators, it may be necessary to reevaluate either the system indicators, the assumed system-limiting factors, or identify other critical factors.

iii. System-Level Monitoring. System-level monitoring must provide a holistic evaluation of the state of the ecosystem using a number of performance indicators that span all of the relevant features of the desired ecosystem state ("integrity"). This level of monitoring would encompass information from throughout the basin—main stem and tributary areas. Rather than evaluating individual aspects of integrity, such as richness, resilience, resistance, etc., the evaluation can look for indications that the desirable ecosystem is reemerging or that undesirable aspects of the system are declining (e.g. aquatic plants, diving ducks, etc.). The monitoring program must accurately represent all of the processes crucial to ecosystem health with the most economical set of indicators possible. If the evaluation is designed correctly, it could be assumed that ecosystem health is improving if all of the indicators are showing improvement. That would suggest that the appropriate system-limiting factors are being addressed and that progress is being made toward the goal.

Restoration success must be measured in time scales that relate to the species and systems being managed, and to the periodicity of extreme environmental conditions characteristic of the region. Measures of restoration success must be done within spatial scales that relate to a whole

ecosystem, and success must be measured at the ecosystem level with long-term evaluation (Zedler 1988). This requires ecologically meaningful and measurable indicators that mark progress toward ecosystem management and restoration goals (Richter et al. 1996).

iv. Computerized Inventory and Analysis (CIA) System. A CIA will be developed to inventory and analyze monitoring information. All monitoring data will be posted to a CIA system within one year of collection with summaries provided every 5 years. Efforts will also be made to share results of models and analysis tools. The estimated cost is $1.9 million.

v. Focused Research Efforts. Specific targeted special studies are proposed to improve planning, design, and construction of the restoration projects and improve success of the overall program. These efforts would be directed at efforts to improve the understanding of the condition of the system, and improve the analysis techniques available. Initial special studies will focus on the following areas. The estimated cost is $4 million.

a. System Ecology. Efforts would include developing a composite system metric similar to the Chesapeake Bay (www.cbf.org). This would address items such as key species abundance, invasive species abundance, macroinvertebrate analysis, range expansion of indicator species, etc. to determine program success and remaining needs. Additional research will focus on the scalability of ecosystem metrics to develop representative characterizations of aspects of the ecosystem and provide cost efficiencies in data collection. Also, a critical aspect of the planning and evaluation of restoration projects is benefit quantification. A tool, such as Hydro Geomorphic Method (HGM) approach for basin wetlands, would be developed in order to improve project planning and the accuracy and efficiency of the benefit quantification of potential restoration projects.

b. Aquatic Ecology. Two issues key to the restoration of ecosystem function along the main stem river are the use of different types of habitat by fish and the factors that currently limit vegetation growth. Focused research is proposed to provide greater understanding of these issues, both of which are anticipated to contribute to refinements of management practice, restoration location needs, and evaluation of habitat restoration effectiveness.

c. Terrestrial Ecology. Several research efforts have been suggested to augment ongoing ecological monitoring. Specifically, studies of shorebirds, furbearers, marsh birds and bats would allow greater application of data collected by resource managers. Studies of avian reproduction and amphibian reproduction are potential indicators of habitat suitability and fragmentation, and hydrology and water quality, respectively. Focused research would evaluate the use of these functions as system indicators.

d. Hydrology and Sediment. Three special studies are proposed to better monitor and model the sediment dynamics in the Illinois Basin. One would evaluate the use of automated samplers—a technique that would reduce the cost of monitoring sediment—and determine methods to compare results from such sampling to historic sampling results, allowing the use of both historical data and new data to assess trends in sediment transport. The second monitoring study would focus on developing methods to better estimate bed loads in the system. A third special study would develop a systemic sediment transport model that would integrate monitoring data to evaluate basin-wide trends and transfer information from the areas being monitored to those that will not be monitored. The model would also be used to evaluate the effectiveness of different alternatives for reducing sediment delivery.

e. Geomorphology. Initial efforts would focus on means to improve resolution of impervious cover class in land cover and land use data sets and to evaluate slope at different data scales. These would provide improvements to landscape-scale evaluation of geomorphic processes which would thereby improve assessment of basin conditions at multiple scales.

b. Plan Design. Each element of the monitoring plan must be evaluated for relevance, technical merit, and practicality to see if it is the proper way to evaluate progress toward "endpoints" identified for its particular level of monitoring. Statistical considerations are extremely important; the issues of uncertainty and detecting change will strongly influence the number and types of sampling locations required to evaluate the anticipated effects. Data quality, anticipated measure response, and natural variability must be considered so that proposed sampling strategies and techniques are adequate to detect the changes expected from program implementation; without the statistical power to detect change it may not be worth the effort to monitor. Appropriate monitoring methodologies are efficient, produce accurate, reasonable and replicable data, and satisfy time and cost constraints.

Existing monitoring efforts provide some of the information required for the monitoring plan; where appropriate, this information will be used and augmented to provide the level of detail and coverage necessary to meet the monitoring requirements of this plan. Also, an effort was made to maximize the inter-disciplinary connections of monitoring, and to design the program to make the information usable at a number of scales (site-specific, watershed, system-wide).

c. Proposed Plan. For each goal, potential indicators of success were developed through consideration of direct measurements of objective completion, additional physical and biological measures of success, and the requirements of adaptive management. These indicators were translated into specific monitoring plan elements (Table 6-4). The monitoring plan proposal developed by the Illinois Natural History Survey team (Appendix H) provides specific measures, techniques, and strategies to monitor these elements at the main stem, sub-basin, and project levels. These overlap with the monitoring requirements in that the monitoring to evaluate ecological integrity at the main stem and sub-basin level will be used to satisfy the system-level monitoring, that the monitoring to evaluate the other goals at the main stem and sub-basin level will satisfy the goal-level monitoring, and that the project-level monitoring levels are directly comparable. The proposed system- and goal-level monitoring would amount to approximately $4 million per year. The contract report also suggests a number of focused research items for budgetary consideration. Based on scientific and stakeholder input, research efforts will be prioritized and the list of potential research projects will be refined over time to reflect changing system understanding and project needs.

d. Recommendations. A systemic long-term resource monitoring program is justified to provide additional information on the status of the ecological integrity of the system and to identify success of restoration efforts. Three levels of monitoring are recommended to best evaluate the system and effectiveness of restoration efforts. At the system-level, it is recommended that monitoring would be designed to develop a snapshot of the overall system health using system indicators. A second level of monitoring (goal-level monitoring) would evaluate the progress in each of the supporting goals, indicating progress for each particular system-limiting factor identified by the project team (e.g. reducing sediment delivery, improving backwater habitats, etc.). Since construction of individual projects is the mechanism by which goals are addressed, project-specific monitoring is also required to evaluate the effectiveness of various project attributes to advance each goal. The outputs of all monitoring efforts will be closely coordinated with project teams and form the basis for adaptive management efforts to maximize the effectiveness of restoration activities. Finally, the program should include funding to address the need for

limited-duration focused studies to evaluate specific issues that arise over the course of the program, such as implications of and means to address system-limiting factors, monitoring needs and techniques, or restoration design features. The proposed system- and goal-level monitoring would amount to approximately $4 million per year. The level of site-specific project monitoring would be scaled based on the level of construction activity. Based on the large study area, complexity of the ecosystem restoration, and the opportunities for increased cost effectiveness, the funding level for the Illinois River Basin Restoration Project should be up to $4 million annually for systemic monitoring and up to 7.5 percent of the construction costs for site specific monitoring, which would equal approximately 13 percent of total program costs through 2011 and 2015. The IRBMP shall include funds for the provision of a data repository publicly accessible via the internet.

Since systemic and goal level monitoring is not currently authorized for implementation, only site specific monitoring is anticipated to be completed until 2008. Once authorized, it is anticipated that the monitoring will be phased in over approximately a 5-year period and be in full effect by 2015. Based on estimated funding levels, it is anticipated that in the initial years approximately $1 million will be available for system and goal level monitoring tasks.

The initial focus will be on filling gaps in the existing condition (baseline) data. Four goals have been established to help provide logic for sequencing the implementation of the various IRBMP components:

- Establish monitoring stations and components necessary to measure stressors identified in the conceptual ecological models
- Close the gaps in biologic, hydrologic, and water quality monitoring components in existing programs
- Initiate priority baseline research to address uncertainties in system response
- Initiate priority baseline monitoring components

While some refinements in the plan are anticipated, it is estimated that in the initial years approximately 60 percent would be used to fund physical parameter monitoring (water, sediment, and geomorphic efforts), and approximately 40 percent would be used for ecological monitoring.

Proposed focus areas for water and sediment monitoring included the Peoria Pool tributaries, Kankakee, Spoon, and LaMoine Rivers. The Spoon and LaMoine were mentioned due to potential benefits associated with more detailed monitoring activities of the state in those basins. Ecological monitoring would look at Peoria Pool, Peoria tributaries, and potentially the Kankakee and LaMoine Basins.

Table 6-4. Proposed Illinois River Basin Restoration Monitoring Program

		Monitoring Program		
Goal	**Objectives**	**Main Stem**	**Sub-Basin**	**Project**
Ecosystem Integrity	Address limiting factors, conserve and restore critical prime habitats, establish existing and reference conditions	Fish, macroinverts, aquatic vegetation, zooplankton, water quality, mussels, land use/land cover (digitized, refined and verified), waterfowl, wading birds, shorebirds, reptiles, mammals and amphibians		GIS – project type and location
Sediment Delivery	Reduce sediment delivery to Illinois River by 20%	Gaging network, backwater TSS, river surveys	Gaging network, stream channel dynamics	Channel geomorphology, project gaging
Backwaters and Side Channels	Restore 12,000 acres of backwater, protect 15 islands, restore 35 side channels	Bathymetry, sediment characterization, sedimentation rates, hydrodynamics		Fish overwintering, waterfowl, water quality, macroinvert, vegetation
Floodplain, Riparian, and Stream Habitats	Create additional 150,000 acres of wetland, prairie and forest combined on main stem floodplain and tributary riparian areas. Reduce effects of channelization on 500 miles of streams.	Land use/land cover (digitized, refined and verified)	Land use/land cover (digitized, refined and verified)	HGM, FQI, IBI, birds, amphibians, avian and amphibian reproduction
Longitudinal Connectivity	Connect tributaries to main stem, connection within tributary areas, connection along main stem			Fish, mussels, effective passage, velocities
Water Levels	Reduce fluctuations, increase baseflow, decrease peakflow, document sources of instability, drawdown	Survey of basin impervious, stream power, gaging network, annual report of basin water conditions	Annual report of tributary water conditions	Aquatic. plants, fish communities, project gaging, substrate and aerial drawdown photos
Water and Sediment Quality	Reduce adverse water quality conditions	Augment existing programs		Water quality sampling as part of biological assessments

2. Sediment Removal and Beneficial Use. Another aspect of the Technologies and Innovative Approaches component called for in Section 519 was the development and implementation of a program for sediment removal technology, sediment characterization, sediment transport, and beneficial uses of sediment. This section describes the general need for this component; various technologies and beneficial use options that are available and have been tested in the basin; further technologies, testing, and applications that should be explored; and ends with recommendations regarding further work. Much of the restoration effort will involve dredging outside of the navigation channel for environmental enhancement and will, therefore, differ in some respects from the more traditional navigation dredging.

The U.S. Army Corps of Engineers Dredging Operations and Environmental Research (DOER) Program conducts research that is designed to balance operational and environmental initiatives and to meet complex economic, engineering, and environmental challenges of dredging and disposal in support of the navigation mission. Research results provide dredging project managers with technology for cost-effective operation, evaluation of risks associated with management alternatives, and environmental compliance. The Corps of Engineers also operates the Regional Sediment Management (RMS) program. The RMS program is focused on managing sediment regionally in a manner that saves money, allows use of natural processes to solve engineering problems, and improves the environment. The Illinois DNR has worked to develop dredging and beneficial use techniques suitable for Illinois River Restoration, including projects with the Corps under the Section 519 authority.

It is anticipated that Illinois DNR will continue as a partner in future efforts under this Illinois River Basin Restoration component, and that the efforts will be coordinated with the DOER and RMS program.

a. Background. Illinois River restoration efforts will require the removal and placement of several million cubic yards of sediment. There is great variation in the size and physical setting of the many backwaters (including side channels and the Peoria Lakes) within the floodplain. These factors make it necessary to consider innovative dredging techniques, innovative methods of handling and transport, and beneficial use options and techniques in addition to conventional methods.

Conventional hydraulic dredging is an efficient and cost-effective method of removing sediment where suitable sites exist for constructing diked areas to dewater and store sediment. Mechanical dredging is commonly used for small jobs and projects where the dredged material can be placed within the reach of a crane or excavator arm, or where construction of a dewatering containment facility is not desired. Additional steps such as loading and unloading barges or trucks, mechanical dewatering, and transport from drying beds and mixing with other soil components all add costs to sediment management efforts.

Most Illinois River sediment washes from streambeds and banks, bluffs and farmland. Heavier sand and gravel particles that enter the floodplain tend to form deltas at stream mouths or move down the main channel. Backwater sediment is largely composed of fine-grained silt and clay particles that are carried farther and settle in slow moving backwaters. Thus, much of the sediment in the backwaters and side channels is similar in physical characteristics to native topsoil. It should, therefore, be possible to use these sediments as soil barring contamination.

A large number of placement and use options in various combinations could be used to accommodate millions of cubic yards of dredged sediment over the next 50 years. Some can be readily implemented with conventional dredging equipment, while others require innovative applications of new or existing equipment. An ideal development would be a device that could remove and transport sediment as readily as hydraulic dredges and place it with the consistency and water content of mechanical buckets. Given that areas outside the main channel are often a foot or less deep and the desired depth of much of the restoration is 3 to 6 feet, the ability to operate in shallow water is also desirable. Another factor is the fine-grained nature of most of the sediment that requires removal.

Innovative approaches to design and implementation are as necessary as innovative technology in a restoration project of this magnitude. The river system has degraded over more than a century, and several feet of sediment has accumulated in most areas.

b. Summary of Potential Areas of Evaluation. This section briefly summarizes areas of potential investigations of sediment characteristics, beneficial use options, and innovative dredge technology. A brief summary of some analyses conducted as part of the Illinois River Basin Restoration planning and recent State of Illinois activities is given, but additional detail is provided in Appendix D.

i. Innovative Use of Hydraulic Dredging. Hydraulic dredges could be used in a number of innovative ways. It is possible to pump material for miles if suitable areas are not available near the dredging location. A pipeline over 20 miles long was used when the White Rock Reservoir was dredged in Dallas to deposit material in an old mining pit. When quantities are great enough, such distances are not out of the question along the Illinois River. Corridors could follow existing highways, railways, streams, storm sewers, and the river itself. Such a system could deliver dredged material to a number of mined areas in Illinois. It may also be possible to use out-of-service gas or oil pipelines to transport slurried dredged material.

Several companies have used mechanical dewatering systems in conjunction with hydraulic dredges. The systems separate most of the water from the sediment and then run it through a belt press. It can then be placed directly into trucks or stockpiles. These systems could be used to dewater sediment piped from miles away for island construction, loading into barges or trucks, placing on fields or other purposes. Polymers can be used in the mechanical processes to speed thickening in the tanks or in dewatering ponds. Among other things, the polymers allow the discharge to meet regulatory standards with less holding time.

ii. Sediment Handling and Transport Technology

a. Conveyors. Conveyor belts have the potential to effectively extend the reach of excavator and crane mounted clamshell buckets. Backwater sediment excavated be placed on islands, on shore, or in trucks that are within reach of the excavator. In order to use large buckets in backwaters, it is necessary to dig deep enough to bring in a floating crane. If material is to be moved beyond the arm's reach, it must generally be loaded onto a barge that may require additional depth. A floating conveyor could operate in shallow water and transport material considerable distances to islands, the shore or barges in the channel.

Some trial demonstrations were conducted to evaluate this transport and handling option (Marlin 2003a and Marlin 2003b). These demonstrations show that backwater sediment can be conveyed with conventional equipment. A system dedicated to sediment should have some modifications from the concrete system. Such features as the hopper and transfer points could have more clearance and splatter could be better controlled.

Floating conveyors over 2,000 feet long are used in the sand and gravel industry and presumably could be designed for use on the Illinois River backwaters. Given the shallow nature of the backwaters, the floating conveyor would be most useful if it drew a foot or less of water. Pipe conveyors are another option. These systems use additional rollers to fold the conveyor belt over itself so that material is contained inside. It unfolds at each end for loading and discharging. These conveyors can curve without using a transfer point.

b. Positive Displacement Pumps. Positive displacement pumps are commonly used for handling concrete and various slurries. They have been used for to handle sediment in several situations. Their main advantage is the ability to deliver sediment without adding large volumes of water. Large pumps can handle over 500 cubic yards per hour and pumping distances in excess of 2,500 yards are attainable. The quantity pumped generally decreases with distance. Two demonstrations of these pumps were conducted with Illinois River sediment in 2002 (Marlin 2002) and (Marlin 2003a). These demonstrations showed the promise of these technologies.

For use in backwater restoration, existing concrete pumps could be placed on floats or work barges and fed with an excavator or crane. The material could then be pumped onto an island, to shore, into geotextile tubes, or into barges or trucks. A placing boom could be mounted on a barge or on shore to place the sediment in a specified pattern and depth. Equipment of this type could provide great operational flexibility, especially where shallow depths are desired and building containment berms is not an option.

c. Barge Transport. Sediment was barged to a Chicago landfill site in the fall of 2002 in order to evaluate the feasibility of moving backwater sediment long distances using conventional equipment (Marlin 2003b). Nine hundred tons of material dredged from Lower Peoria Lake was placed in a barge with a clamshell bucket. The bucket was heaped to minimize the amount of free water placed in the barge. The barge was towed 163 miles to a Chicago dock on the waterway and unloaded into trucks for the 1-mile trip to the landfill. The material presented no serious handling difficulty and the trucks and barge cleaned normally after the project.

In 2004, the State of Illinois moved 68 barge loads of Peoria Lake sediments to the Chicago Lake front to restore a portion of the 100 acre former U.S. Steel site as part of the State's "Mud to Parks" demonstration. This project further demonstrated the potential feasibility of transporting river sediment relatively long distances to utilize these sediments as a resource.

iii. Placement Options. In many restoration projects dredged material is used to create islands or increase existing land elevations. However, due to the scale of restoration needs, only a limited amount of material can be used to develop islands, increase existing island elevations, and create wind and wave breaks in backwaters. Such structures will restore some of the features of the original system that were lost when water levels were increased during the last

century, including: adequate elevations to support native floodplain hardwood trees; relatively isolated areas for wildlife to rest, forage, or nest; and structure to break waves reducing sediment re-suspension.

Sites capable of holding large quantities of dredged sediment either permanently or for later use exist in the basin, but not always in proximity to backwaters needing restoration. Potential placement options include gravel pits, strip mines, and fields. The material can be dewatered behind a dike or dried and piled to any desired shape. A mound could be several stories high and as long and wide as desired.

The bulk of the material in the backwaters is quite similar to topsoil. Clean sediment could be used for landscaping, landfill cover, restoration of mine land and industrial sites, amending agricultural soil, and as bagged soil. Some sediment is suitable for use as construction fill, levee repair, and other projects depending upon its physical properties. If options with commercial value are found, it may be possible to offset all or part of the cost of some restoration dredging.

One technology the State of Illinois has evaluated on a limited scale is geotubes. Four 15-foot-circumference tubes were placed in shallow water in Upper Peoria Lake in conjunction with the Drydredge ™ demonstration in May of 2001. They were filled with the DryDredge™. They formed an island about 50 feet on a side that was filled with sediment at near *in situ* moisture content.

iv. Beneficial Use

a. Dredged Sediments as Soil. Landscaping soil is a potential beneficial use of large quantities of sediment removed from water bodies, and the chemical and physical properties of the dredged material will largely determine its suitability. Sediment from the Illinois River valley has properties that indicate that it would make excellent landscaping soil. Much of the sediment found in the Illinois River valley originated from eroded fertile rural areas. Consequently, it contains less pollution in the form of heavy metals and other chemical contaminants than is typically found in sediments from urban or industrial areas. Some compounds found in sediments, such as ammonia, that are often toxic in an aquatic environment, may be beneficial to plants when placed on land. A variety of tests have shown that the germination and growth of a variety of plants in sediment and central Illinois topsoil was essentially equivalent (Darmody and Marlin 2002, Darmody et al, 2004 in press). The conclusion is that sediments can serve as well as natural, high quality topsoil as a plant growth medium in the greenhouse.

b. Amendment to Sandy Agricultural Soil. Crop production on sandy soil amended with Illinois River sediment is under study by University of Illinois soil scientist Dr. Robert Darmody with funding from the state. Preliminary results indicate that sediment moderates fluctuations in soil temperature and significantly improves moisture-holding capacity in sandy soil. Seed germination and plant growth were also greater on sediment plots. During the 2003 season corn yields were greater on all sediment plots. Plots with 6 to 12 inches of sediment produced over 3.5 times the yield of untreated sandy soil plots. Soybean yields were not as dramatic, although the 6-inch treatments produced statistically higher yields than the controls or other sediment plots. The 6-inch incorporated plots produced 1.6 times the yield of the controls.

Sandy soils are found in several counties bordering the Peoria and La Grange Pools. Given the nearness of some fields to the river and backwaters, it may be feasible to pump sediment directly to fields or transport it short distances by other means. Further study will help determine whether sediment will improve soil conditions enough to warrant placement onto sandy fields. Placing a 6-inch layer on a 100-acre field would require about 80,600 cubic yards of sediment.

c. Sediments Used for Greenhouse Applications. In terms of standard agronomic parameters such as plant growth, results confirm previous work that established that sediments from the Peoria Lakes reach of the Illinois River make excellent topsoil material. Both legume and grass plants grew well in all sediment mixtures and improved the plant growth potential of unleached biosolids. Addition of biosolids to sediment mitigates some of the problem with growing plants directly in sediments or biosolids. Pure sediments may have poor physical characteristics, at least initially under some field conditions. Pure biosolids have excessive salts that inhibit plant growth, particularly legumes, as evidenced by the death of some snapbean plants on 100 percent biosolids. The sediments may experience improved tilth and higher plant nutrient content under field conditions when mixed with biosolids.

c. Recommendations. Innovative Sediment Removal and Beneficial Use Technologies will be evaluated and tested to evaluate more ecologically sound, cost effective, and beneficial ways to dredge and place material. These efforts would be closely coordinated with ongoing Corps activities related to dredging and regional sediment management. Potential efforts include summaries of lessons learned from past dredging projects, demonstrations of various methods to build islands, use of geotextile tubes and other means of forming narrow windbreaks to reduce wave action and re-suspension of sediments, utilize sediments on farmland as a soil amendment, transport options (pumps, pipeline, rail, barge, etc.) and evaluate various innovative technologies and methods.

Another concept to be explored involved project and construction sequencing. A promising implementation option may involve a contractor removing incremental amounts of sediment from several locations in a river reach at different times during the first year and repeating the process over several years until the desired depths are met. This would allow the material at the placement sites to consolidate or be removed for use in more manageable quantities. It would likely require less land and construction at the placement site. This approach is similar in principle to some maintenance dredging contracts that cover river reaches.

In regard to beneficial use, the chemical and agronomic character of deposited sediment and the underlying original bottom in backwaters should be determined in order to identify restoration sites where beneficial use is a viable option. The initial work should require a few samples for chemical contamination and a larger number for characterization of suitability for use as soil or fill. A market analysis for sediment by itself or mixed with other material as a bagged or bulk soil would be useful. The material on the deltas is sandy and is likely to be useful as fill or in some cases commercial sand. Cores of this material should be taken and evaluated. There is a need for such material at construction and brownfield redevelopment sites near the river and in the Chicago area. The feasibility of moving these deposits by barge, rail and truck needs to be investigated. In addition, sediment could be used as the basis for flowable fill, to be used in utility, road repair, and other construction applications.

Additional testing and use of innovative technologies and beneficial use options are recommended. This is justified based on the fact that restoration of depth diversity within the Illinois River Basin is a major goal that will require dredging and placement. In addition, a wide range of potential technologies and uses exist that merit further exploration.

D. DIVISION OF PLAN RESPONSIBILITY

This section presents the requirements for implementing the Recommended Plan, including Federal and non-Federal cost sharing, and the division of responsibilities between the Federal Government and the non-Federal sponsor, the Illinois DNR and potentially others. It also lists the major milestones necessary for project approval, and a schedule of milestones associated with designing and constructing the Recommended Plan.

1. Recommended Plan Cost Sharing. Federal and non-Federal cost sharing for the Recommended Plan is in accordance with Section 210 of WRDA 1996, which establishes the cost-sharing rules for projects authorized after October 12, 1996, and Section 519 of WRDA 2000, with cost-sharing provisions for this project. Section 519 specifies that the non-Federal share of the cost of projects and activities shall be 35 percent, with no more than 80 percent of the non-Federal share from in-kind services. The Non-Federal Sponsors will provide 100 percent of any lands, easements, rights-of-way, relocations of utilities or other existing structures, and disposal areas (LERRD). The value of LERRD will be included in the non-Federal 35 percent share. Where the LERRD exceed the non-Federal Sponsor's 35 percent share, the sponsor will be reimbursed for the value of the LERRD that exceed the 35 percent non-Federal share. The non-Federal Sponsor is also responsible for 100 percent of the costs for operation, maintenance, repair, rehabilitation, and replacement (OMRR&R) of project features. Table 6-6 breaks out these estimated program costs.

Table 6-6. Summary of Tier I Cost Sharing - $153.85 million ($100 million Federal)

Illinois River Basin Restoration		**Non-Federal**		**Federal**	
Project Feature	**Cost**	**%**	**Cost**	**%**	**Cost**
First Cost of Construction	$126,960,000	35	$44,440,000	65	$82,520,000
Program Cost	$26,890,000	35	$9,410,000	65	$17,480,000
Total Restoration Program	$153,850,000	35	$53,850,000	65	$100,000,000
LERRD Credit	$30,000,000	100	$30,000,000	0	$0
Cash	$123,850,000	100	$23,850,000	0	$100,000,000
OMRR&R (average annual)	$125,000	100	$125,000	0	$0

2. Federal Responsibilities. The Federal Government would provide 65 percent of the first cost of implementing the Recommended Plan, including a restoration implementation program, a technologies and innovative approaches component, and system management, which is estimated to total $100 million. In addition to its financial responsibility, the Federal Government would:

a. Complete assessments, project reports, plans and specifications, and construction of the Recommended Plan.

b. Implement the Technologies and Innovative Approaches Component including

1. Illinois River Monitoring Program (including Long Term Resource Monitoring, Special Studies, and Computerized Inventory and Analysis System) to evaluate system trends and performance of restoration projects.
2. Evaluate innovative dredging technology and beneficial use options.

c. Administer and manage contracts for construction and supervision of the program after authorization, funding, and execution of a Project Cooperation Agreement with the Illinois DNR.

3. Non-Federal Responsibilities. The Illinois DNR and other local sponsors would be responsible for providing 35 percent of the First Cost of implementing the Recommended Plan. The 35 percent share of the project cost includes the Illinois DNR's and other sponsors responsibility for providing all LERRD. The estimated non-Federal costs are $53,850,000, which includes $23,850,000 in cash with $30,000,000 in LERRD credit.

The Illinois DNR and other local sponsors would also be responsible for OMRR&R of project features.

The Illinois DNR and other local sponsors also would be required to provide certain local cooperation items based on Federal law and policies. The items of local cooperation are:

a. Provide a minimum of 35 percent of total project costs as further specified below:

1. Provide, during the first year of construction, any additional funds needed to cover the non-federal share of design costs;

2. Provide all lands, easements, and rights-of-way, including suitable borrow and dredged or excavated material disposal areas, and perform or assure the performance of all relocations determined by the Federal Government to be necessary for the construction, operation, and maintenance of the project;

3. Provide or pay to the Federal Government the cost of providing all retaining dikes, wasteweirs, bulkheads, and embankments, including all monitoring features and stilling basins, that may be required at any dredged or excavated material disposal areas required for the construction, operation, and maintenance of the project; and

4. Provide, during construction, any additional costs necessary to make its total contribution equal to 35 percent of total project costs;

b. Provide the non-Federal share of that portion of the costs of mitigation and data recovery activities associated with historic preservation, that are in excess of 1 percent of the total amount authorized to be appropriated for the project, in accordance with the cost sharing provisions of the agreement;

c. Do not use Federal funds to meet the non-Federal Sponsor's share of total project costs unless the Federal granting agency verifies in writing that the expenditure of such funds is authorized;

d. Operate, maintain, repair, replace and rehabilitate the project, or functional portion of the project, including mitigation, at no cost to the Federal Government, in a manner compatible with the project's authorized purposes and in accordance with applicable Federal and State laws and regulations and any specific directions prescribed by the Federal Government;

e. Give the Federal Government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-Federal Sponsor, now or hereafter, owns or controls for access to the project for the purpose of inspecting, operating, maintaining, repairing, replacing, rehabilitating, or completing the project. No completion, operation, maintenance, repair, replacement, or rehabilitation by the Federal Government shall relieve the Non-Federal Sponsor of responsibility to meet the Non-Federal Sponsor's obligations, or to preclude the Federal Government from pursuing any other remedy at law or equity to ensure faithful performance;

f. Hold and save the United States free from all damages arising from the construction, operation, maintenance, repair, replacement, and rehabilitation of the project and any project-related betterments, except for damages due to the fault or negligence of the United States or its contractors;

g. Perform, or cause to be performed, any investigations for hazardous substances that are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Public Law 96-510, as amended (42 U.S.C. 9601-9675), that may exist in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be required for the initial construction, periodic nourishment, operation, and maintenance of the project. However, for lands that the Federal Government determines to be subject to the navigation servitude, only the Federal Government shall perform such investigations unless the Federal Government provides the Non-Federal Sponsor with prior specific written direction, in which case the Non-Federal Sponsor shall perform such investigations in accordance with such written direction;

h. Assume, as between the Federal Government and the non-Federal Sponsor, complete financial responsibility for all necessary cleanup and response costs of any CERCLA regulated materials located in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be necessary for the initial construction, periodic nourishment, operation, or maintenance of the project;

i. Agree that, as between the Federal Government and the Non-Federal Sponsor, the Non-Federal Sponsor shall be considered the operator of the project for the purpose of CERCLA liability, and to the maximum extent practicable, operate, maintain, and repair the project in a manner that will not cause liability to arise under CERCLA;

j. Prevent obstructions of or encroachments on the project (including prescribing and enforcing regulations to prevent such obstruction or encroachments) which might reduce the level of protection it affords, hinder operation and maintenance, or interfere with its proper function, such as any new developments on project lands or the addition of facilities which would degrade the benefits of the project;

k. Keep and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of 3 years after completion of the accounting for which such books, records, documents, and other evidence is required, to the extent and in such detail as will properly reflect total costs of construction of the Project, and in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 Code of Federal Regulations (CFR) Section 33.20;

l. Comply with Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended (42 U.S.C. 1962d-5), and Section 103 of the Water Resources Development Act of 1986, Public Law 99-662, as amended (33 U.S.C. 2213), which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until the non-Federal sponsor has entered into a written agreement to furnish its required cooperation for the project or separable element;

m. Comply with all applicable Federal and State laws and regulations, including, but not limited to, Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d), and Department of Defense Directive 5500.11 issued pursuant thereto, as well as Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army", and all applicable Federal labor standards and requirements, including but not limited to 40 U.S.C. 3141- 3148 and 40 U.S.C. 3701 – 3708 (revising, codifying and enacting without substantial change the provisions of the Davis-Bacon Act (formerly 40 U.S.C. 276a *et seq.*), the Contract Work Hours and Safety Standards Act(formerly 40 U.S.C. 327 *et seq.*) and the Copeland Anti-Kickback Act (formerly 40 U.S.C. 276c *et seq.*); and,

n. Comply with all applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended (42 U.S.C. 4601-4655), and the Uniform Regulations contained in 49 CFR Part 24, in acquiring lands, easements, and rights-of-way, necessary for the initial construction, periodic nourishment, operation, and maintenance of the project, including those necessary for relocations, borrow materials, and dredged or excavated material disposal, and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act.

E. INSTITUTIONAL REQUIREMENTS

1. Sponsorship Agreement. Prior to the start of construction for each restoration project, the Illinois DNR will be required to enter into a Project Cooperation Agreement (PCA) with the Federal Government and satisfy State laws and all applicable regulations. In general, the items included in the PCA have been outlined in the previous paragraphs.

2. Local Cooperation. The Illinois DNR provided a letter of intent on June 30, 2004, indicating their support for the Recommended Plan and their willingness and intent to execute PCAs for the Critical Restoration Projects including providing the non-Federal required assurances.

3. Project Management Plan. A Project Management Plan (PMP) for implementation of the Recommended Plan will be prepared for the final report. The PMP will describe

activities, responsibilities, schedules and costs required for the continuation and implementation of the project.

4. Plan Implementation. Future actions necessary for authorization and construction of the recommended plan are summarized below:

a. The U.S. Army Corps of Engineers, Mississippi Valley Division Commander will review the final report.

b. This report will be submitted for review by the Headquarters of the U.S. Army Corps of Engineers, Washington D.C. and the Civil Works Review Board will be convened to determine if the report is releasable for state and agency review.

c. The 30-day state and agency review, to seek comments from the state of Illinois and interested Federal agencies, and coordination of the Environmental Assessment will be ongoing concurrently during the HQ USACE review.

d. Following State and agency review, a Director's Report will be prepared and it, along with the report will be sent to the Assistant Secretary of the Army for Civil Works.

e. Upon approval of the Assistant Secretary, the report will be forwarded to the Office of Management and Budget to obtain the relationship of the project to programs of the President. Prior to the transmittal of the report to the Congress, the non-Federal sponsor, the State of Illinois, interested Federal agencies, and other parties will be advised of any significant modifications made to the recommendations and will be afforded an opportunity to comment further.

f. The Director's Report will then be forwarded by the Assistant Secretary of the Army for Civil Works to Congress.

g. Congressional review of the feasibility report/comprehensive plan and possible modification to the existing authorization of the project would follow, generally as part of a WRDA.

h. Pending continued authorization for construction; the Chief of Engineers could include funds, where appropriate, in his budget requests for continuation of the project and construction.

i. Following existing implementation guidance, planning, preconstruction engineering, and design for restoration projects would be initiated and surveys and detailed engineering designs would be accomplished.

j. Following completion of plans and specifications for each Critical Restoration Project, formal assurances of local cooperation would be required from non-Federal interests.

k. The Illinois DNR will be required to provide all real estate requirements for project implementation.

l. Bids for construction would be initiated and contracts awarded.

m. Upon completion of construction, the project will be turned over to the Illinois DNR or other sponsors, who will be responsible for OMRR&R in accordance with guidelines provided by the Corps of Engineers.

5. Project Implementation Schedule. The schedule for the Plan is for the final report to be forwarded to the Mississippi Valley Division in April 2006 and for the Director's Report to be issued in August 2006. Execution of the PCAs for the initial Critical Restoration Projects are expected in FY 2006 and 2007. Work to be accomplished includes continuing Critical Restoration Projects as part of a restoration implementation program and adding a technologies and innovative approaches component and system management. Completion will depend on annual funding and the timing of construction authorization. A Report to Congress describing the accomplishments of the programs and any need for adjustments will be prepared in 2011.

6. Views of Non-Federal Sponsor(s) and Any Other Agencies with Implementation Responsibilities. The Non-Federal Sponsor the State of Illinois, acting through the Illinois DNR, is in support of the draft recommended plan and is interested in continuing efforts to proceed to construction on the initial Critical Restoration Projects. In addition the Indiana DNR and Kankakee River Basin Commission have expressed interest in participating in projects within their jurisdiction.

The State of Illinois, Office of the Governor, provided a letter of intent on June 30, 2004. The letter extends the State's full support for Alternative 6 and recommendation set forth in this Plan document. The letter also requests that work continue to proceed towards construction with the signing of Project Cooperation Agreements (PCAs) for the initial Critical Restoration Projects including Peoria Riverfront Development – Upper Island, Pekin Lake Northern Unit, and Pekin Lake Southern Unit.

In addition to the State of Illinois, the potential exists for both the States of Indiana and Wisconsin to participate in projects within their portions of the watershed as well as other potential local sponsors. The Indiana DNR submitted a letter on September 16, 2004 expressing interest in serving as a sponsor in restoration efforts under this authority. The Kankakee River Basin Commission, consisting of 24 members from eight Indiana Counties in the drainage basin submitted a letter on September 10, 2004 expressing interest in potential partnerships along the Kankakee and Yellow Rivers.

Note: Other letters and comments received during the public review period will be added prior to distribution of the final report.